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ABSTRACT

The procedures manual, developed for the vocational curriculum evaluation model, details the process used to evaluate programs. In the first of eight sections, the manual presents seven criteria for judging the program: (1) meeting job market needs, (2) meeting past-present students' vocational aspirations, (3) demonstrating graduates' successful performance, (4) receiving occupational community support, (5) demonstrating cost-effectiveness, (6) meeting handicapped and disadvantaged students' needs, and (7) demonstrating sex fairness. (Twenty-nine sub-criteria are appended.) The criterion measures which are detailed in the report are the questionnaires for the advisory committee, current students, graduates, employers, occupational community, and program head. A program cost form, cost-effectiveness rating form, and a facilities checklist are also explained. Section 2 identifies and defines the survey population. The third section discusses budget and enrollment figures, indexes for the college, labor market projections, and program competencies and checklists. Section 4 reviews the data collection procedures, and the following section provides extensive directions for data analysis. In the sixth section directions are given for utilization of the evaluation score sheet. Program and composite evaluation profiles are explained in section 7, and the final section makes recommendations for use of the model. (For the description of the vocational curriculum education model see CE 018 868.) (CSS)

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Procedures Manual for the Implementation of a Vocational Curriculum Evaluation Model

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BEST COPY AVAILABLE

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CE 018 869

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INTRODUCTION

The vocational curriculum evaluation model was developed by the Division of Planning and Development at the Metropolitan Community Colleges (MCC), with a grant from the U.S. Office of Education, Bureau of Occupational and Adult Education. A subsequent grant was awarded to MCC to implement the evaluation model. The model includes three basic elements for program evaluation: 1) criteria, 2) criterion measures, and 3) procedures.

Criteria

The following criteria were identified as providing the standards against which the merit of vocational programs would be judged. These criteria are based on the objectives of MCC's vocational programs, the state of Missouri, and nation-wide objectives for vocational education.

1. The program meets the needs of the local job market
2. The program is successful in meeting the vocational aspirations of past and present students
3. The program demonstrates successful performance of its graduates
4. The program receives the support of the occupational community for which training is provided
5. The program is cost-effective
6. The program is successful in meeting the needs of handicapped and disadvantaged students
7. The program is successful in demonstrating sex fairness

In addition to the seven criteria, twenty-nine sub-criteria were developed in order to respond to such questions as, how do we measure whether the program is meeting the needs of the local job market? How do we measure cost-effectiveness? What is successful performance? What is community

support? et cetera. Appendix A lists the twenty-nine sub-criteria under the appropriate criteria, the populations from which data will be collected, and the criterion measures that will be used to collect the data.

Criterion Measures

In order to collect the necessary data for the MCC Evaluation Model, several criterion measures were constructed and field tested. Measures included mail-out questionnaires, checklists, and evaluation forms. The criterion measures are included in the text of this report, and include the following: 1) Advisory Committee Questionnaire, 2) Current Student Questionnaire, 3) Graduate Questionnaire, 4) Employer Questionnaire, 5) Occupational Community Questionnaire, 6) Program Cost Form, 7) Cost Effectiveness Rating Form, 8) Program Questionnaire, and 9) Facilities Checklist. Employment projections compiled by the Division of Employment Security of the Missouri Department of Labor and Industrial Relations, for the Kansas City SMSA were also utilized.

Procedures

The procedures developed for the vocational curriculum evaluation model detail the process used to accomplish the evaluation. Although the procedures are presented in a logical manner, they are not to be viewed in a step-by-step time sequence. Based on MCC's experience in implementing the model, a section entitled "Recommendations for Model Use" has been added to allow the user to develop a time frame for model implementation.

DEFINITION AND IDENTIFICATION OF SURVEY POPULATIONS

Primary Advisory Committee (Criterion Questionnaire)[1]

Users of the Evaluation Model must establish a Primary Advisory Committee to determine the importance of each of the model's criteria in contributing to the overall evaluation of a vocational program. This committee should serve to construct the criterion weights by responding to a paired comparison questionnaire containing all criteria to be used in the model.[2]

The committee used at MCC consisted of 159 state and local educators, legislators, college trustees, students, and local businesspersons. With this committee, the MCC model recognized the needs and values of faculty, students, funding agents, administrators and members of the local occupational community for which students are trained.

Secondary Advisory Committee (Sub-criterion Questionnaire)

The Secondary Advisory Committee is used to construct weights for each criterion's sub-criteria. If the user wishes to use the same sub-criteria included in the MCC model, persons on this committee must respond to a 57 item questionnaire. If additional sub-criteria are to be used, the number of items on the questionnaire will increase, due to the formula requirements in constructing the questionnaire. Because of the time required to respond to a lengthly questionnaire, the user should select a smaller and more select

[1]The questionnaire enclosed in parenthesis is the one which is used with the population described.

[2]The specific methods regarding use of each type of questionnaire will be detailed at the appropriate place in the DATA ANALYSIS section.

group of persons which is most directly involved with, and interested in the evaluation effort and the implementation of its results.

For example, the MCC Second Advisory Committee consisted of 4 academic deans, the 4 college presidents, 10 key administrators and the 2 evaluators from the 4 colleges and the district office. The composition and size of this committee may vary across institutions depending upon the types of sources of input sought. It is recommended, for statistical reasons however, that responses from at least 20 persons are obtained.

Current Program Students (Current Student Questionnaire)

The model user needs to identify currently enrolled students according to the programs in which they are enrolled and should do so early in the semester during which the evaluation will take place. The most efficient way of accessing this data is through the use of existing computer system files, if these are available. Program personnel (i.e. chairpersons and faculty) should then be asked to validate the list of names for their program by adding and deleting names where appropriate. If computer access is not possible, the appropriate program and college personnel should be asked to generate these lists. Unless the lists must be generated by hand and the number of students in a program is very large, the user is urged to survey all students in a program.

Program Completers (Graduates) (Student Follow-up Questionnaire)

Program completers are defined as persons who have actually completed degree requirements and have graduated from a program. Again, lists of these students may be identified from computer files and subsequently validated. Also, both program personnel and the college registrar may be

good sources for identifying these completers. It is recommended that graduates from the previous two academic years be identified and surveyed for two reasons. First, this provides information from graduates who have been out of the program and employed over a year as well as from those who have recently graduated. The perspectives of persons who have had a chance to apply skills for a longer time may differ from those of persons who are relatively new on a job. Second, because some programs have very few graduates, the survey of graduates from the last two years is needed to increase the number of responses and therefore yield more stable data analyses.

Program Leavers (Student Follow-up Questionnaire)

Program leavers are defined as persons who have left a program of study with "marketable skills". These persons are usually more difficult to identify because they must be differentiated from "drop-outs" or those who have left a program but have acquired no marketable skills from their study in the program. The first step in making this distinction involves the definition and identification of "marketable skills". Conceptually, such a skill is one that would help a person secure work in a given vocational field or would directly contribute to better job performance, advancement, etc. In the MCC evaluation, for example, only those vocational courses that were reimbursed by the state legislature were considered to have provided students with marketable skills.

The second step involves determining which of these marketable skills courses correspond to which vocational programs. For example, a course in Criminal Justice would provide a student in an Administration of Justice program with a marketable skill but would not provide an Automotive Student

with one. Therefore, a list must be made which indicates the program of study in which a student must be enrolled for a given course to provide him/her with a marketable skill.

Finally, those students who have left school prior to graduation (without transferring to another school) are identified for each program. Transcripts are then examined and a list made of students who have successfully attained a marketable skill (i.e. a grade of 'C' or above in one of the courses on that program's list) from the program. This process yields a listing of program leavers.

Employers of Program Completers and Leavers (Employer Questionnaire)

Employers of program completers and leavers are the most easily identified groups. The Student Follow-up Questionnaire sent to completers and leavers contains a section asking each past student who is employed to indicate place of current employment and name of direct supervisor.

Surveys are then sent to these persons' supervisors. In cases where a supervisor is not named, the user should request that the personnel director (for example) route the survey to the appropriate person having some knowledge of this past student's job performance.

Employers of some past students are not to be surveyed, however. A second item on the Student Follow-Up Questionnaire asks the degree of relationship between the person's employment and his/her program of study training. The user should not survey employers of the past students who indicate that no relationship exists here.

Occupational Community (Occupational Community Questionnaire)

A program's occupational community can be identified through the help of the program chairperson. The chairperson should be able to provide standard industrial codes (SIC) for businesses related to the area of program training. For example, Animal Health Technology's occupational community is comprised of veterinary hospitals and clinics with a SIC code of 722.

After the occupational SIC code has been identified, a random list of business names and addresses within the SIC code can be taken from the leased Contacts Influential book. It is recommended that at least 100 (if possible) businesses should be contacted within an occupational community. The user should also investigate the existence of professional organizations within an occupational community which may provide names and addresses or even mailing labels of its members. These lists may be available for low or no cost. It is recommended that the occupational community selected be verified by program chairpersons.

ACCESS NONSURVEY DATA

Program Cost Information (Program Cost Form)

In order to evaluate a program's cost-effectiveness, both cost per credit hour and cost per contact hour must first be calculated for each vocational program in the institution. Costs of every program, whether they are currently being evaluated or not, must be calculated as the evaluation of an individual program is normatively based. (Only the data needed is identified here. Specific calculation methods are detailed later in the DATA ANALYSES section.)

Two general types of data are needed and include both budget and enrollment information. In the MCC evaluation, all indices were computed on a full year basis. Budget information was based on final figures for the latest completed fiscal year. Enrollment figures were computed for a full academic year, including fall, spring, and summer terms. In order to correspond to the fiscal year figures, however, the academic year was defined as beginning with the summer semester, rather than the fall semester, as usually defined. Enrollment figures were thus obtained from the same three consecutive semesters on which the budget information was based.

For each program, the user must identify six different budget and enrollment figures, including the following:

1. Program FTE (Full-time equivalent) - This figure is calculated based upon the total number of hours in which students are enrolled in a given program. This figure must be obtained from enrollment reports which list students and hours taken grouped by their program of enrollment. The user must also determine the number of credit hours per semester which defines a student as "full-time". For example, MCC defines a student enrolled in at least 12 hours as full-time. Therefore, the total number of

hours enrolled in by students in a particular program, divided by 12, yielded the FTE for that program.

2. Program Credit Hours - This figure refers to the total number of credit hours generated by a program's courses. Program credit hours must be obtained from reports which list courses grouped by program (department). The total number of enrollment hours in all courses offered by a given program yields the necessary credit hour figure.

3. Program Contact Hours - This figure refers to the number of instructor contact hours which correspond to the courses offered by a given program. For example, a 3 credit hour lecture course may involve only 3 contact hours per week by the instructor. A 3 credit hour laboratory course may, however, involve 6 instructor contact hours per week.

Again, the user must identify these totals for all courses offered by a given program. If these are not available in existing reports, the user may be able to work with program chairpersons and faculty to generate the totals. If this proves unfeasible, the sub-criterion based on contact hours may be deleted.

4. PIE - Program Instructional Expense - This figure is defined to include the salaries and benefits paid to faculty for teaching courses offered by the program. If faculty teach courses in more than one program, the user must be certain to include only that percentage of the faculty members' salaries and benefits that reflects teaching in the particular program of interest. This data should be obtained from budget reports which list expenditures by each program.

5. PSE - Program Support Expense - This figure includes all program specific expenses (i.e. support staff, supplies, equipment, furniture,

misc., etc.) except those identified above as instructional expense. This data is usually listed, by program, along with the instructional expense.

6. RFE - Relative Faculty Effort - This figure is an estimate of faculty effort devoted to instructional activities, as opposed to research, committee activities, etc. By multiplying the instructional expenses by the RFE, an attempt is made to identify that portion of faculty cost which is appropriately distributed to instruction. As stated in the Commonwealth report (Beatty, G., Gulko, W. W. and Sheenan, 1974):

> The proportion of faculty effort devoted to instruction may, for some institutions, be the most difficult data element to provide. For example, distributing the Relative Faculty Effort by level of instruction often requires an imprecise determination of what is basically a subjective variable (p.12).

For the MCC model, a constant RFE of .90 (90% of faculty effort used for instruction) was used for all programs. While it is highly desirable and recommended that the RFE factor serve as a variable across programs, the estimates were too subjective and lacking of variability (.88 to .92) to support the use of a non-constant. (Clark, 1976) Consequently, the program formulas used a constant estimated RFE of .90. To improve the discriminating ability of the ICI formulas, users of the MCC model are recommended to provide more accurate and variable estimates of the RFE. Suggestions for attaining these estimates may be found in the Commonwealth report.

The user must also identify two indices for the college including:

1. College Administration, Operations & Maintenance Expense - This figure includes the salaries and benefits of all administrative and staff personnel who provide support at the college level. Also included are the entire college level operations and maintenance costs. In the MCC evaluation, all expenses such as scholarships, etc. that were actually funded by outside sources were not included in this total.

2. College FTE (Full-time equivalent) - This figure is based on total hours of enrollment in the college and the same full-time student definition as used in determining Program FTE (i.e. 12 hours = 1 full-time equivalent).

Finally, dependent upon the institution's structure, the user may need to identify two additional indices. If the institution is such that there are several colleges that form a district structure, both District Administration, Operations & Maintenance Expense and District FTE must be calculated at the District level as they were at the college level.

Labor Market Projections

In order to determine labor market projections, persons in other locations may contact their nearest State Division of Employment Security. The Division of Employment Security publishes labor trends and projections covering a ten year period, and these trends and projections are updated annually. If employment projections by occupation cannot be translated into the evaluation model requirements or High, Medium, or Low need, then criteria must be established for assigning a particular program to one of these categories. Consideration must be given to the number of area schools offering the program, the number of yearly graduates, and the average number of annual job openings. The latter consideration is provided in the Division of Employment Security publication.

Metropolitan Community Colleges used two sources in determining labor demands for its occupational programs. Labor trends and projections for employment in business within SIC codes (Standard Industrial Codes) are provided in a report by the Manpower Division of Kansas City, Missouri. Program graduates' chances for employment in the Kansas City Metropolitan

Area were determined by comparing their program with those listed in the report. A copy of the report with projections to 1980 is in the project file. Although the report has been useful, it has not been any updated since its publication in 1976. Hence, project staff utilized the Kansas City Employment Outlook-Projections to 1985, published in April, 1978, by the Missouri Division of Employment Security. In addition to utilizing these two publications, economists with the City Development Department assisted in the placement of occupational programs into one of the following categories that describes labor market demands of High, Medium or Low need.

Program Facilities Checklist

In order to use the checklist, program space must be identified according to where classes are held at the individual campuses, and program space is to be checked against the facilities checklist. The parking lots, dining facilities and bookstore must also be assessed at the individual campuses to determine their accessibility to handicapped students.

Program Competencies

All program chairpersons, with their faculty members, are to develop a list of skills or competencies that their graduates will be able to perform. These competencies are to be mailed out with the occupational community questionnaire. In order to specify skills learned, the program's curriculum must be analyzed, and for each of the program courses, specified skills must be stated. In cases where skills are developmental from lower level courses to higher level courses, only the higher level skills need be specified. The necessity of comparing skills to courses becomes

apparent on the occupational community questionnaire when the occupational community is asked "what specific skills do you feel should be deleted?" This information can be translated back to specific courses, and can be helpful in the formative evaluation of programs.

Program Checklist

The program checklist is designed to determine the extent to which occupational programs meet the needs of handicapped and disadvantaged students, and the extent to which they demonstrate sex fairness. The checklist can either be sent through the mail or completed during a brief interview. The contents of the checklist inquire as to the number and kind of personal support services (e.g., financial aid, tutoring, etc.) made available for the handicapped and disadvantaged as well as the number and kind of recruitment efforts made for these same individuals. It also inquires as to the program's encouragement of both sexes to enroll in program.

DATA COLLECTION PROCEDURES

The MCC model includes a mail survey of five populations and involves sending out the following questionnaires to large groups of people for each program evaluated: 1) Current Student, 2) Student Follow-up, 3) Occupational Community, and 4) Employer Questionnaires. The fifth population, Primary Advisory Committee is surveyed only once, and the data is used for all programs evaluated. This section describes the specific data collection procedures employed by the MCC project staff in conducting these surveys. Users may wish to set up entirely different procedures or modify these to accommodate the particular circumstances of their own projects. In any case, these procedures are presented here as guidelines, as they proved to be very efficient and relatively simple to implement with the MCC project.

The user must first decide how many mailings to send to each population. An initial mailing and two follow-up mailings were used in the MCC project. As rough estimates of the return rate percentages that might be expected with each mailing to a population, the actual return rates obtained in the MCC project are presented below.

	Cumulative Percentage (of total) Returned		
Questionnaire Sent	Initial Mailing	2nd Mailing	3rd Mailing
Current Student	28	45	60
Student Follow-up	33	45	55
Occupational Community	21	35	46
Employer	58	75	83

Based on the large return increases due to sending two follow-ups, it is recommended that the user send three mailings to each group, if at all possible. If clerical resources are limited, however, first priority

should be placed on sending the third mailing to both the Student Follow-Up and Employer groups. Although the percentage returned after the second mailing is high for both of these groups, the sizes of the initial populations are much smaller than those of the current students and occupational communities. Therefore, the actual number of Student Follow-Up and Employer returns is much smaller and higher return percentages are needed to obtain a reasonable number of responses for analyses. The Return Rate Summary presented in Figure 1 can be used for monitoring the return rates for each program evaluated. If the user is interested in only the cumulative total return rates resulting from each mailing, calculation of columns F, H, I, L, N, and O may be omitted.

Once the user decides on the number of mailings to be made, the next step is to prepare or access a set of mailing labels for each program for each questionnaire. The number of mailings will determine the number of duplicate sets of mailing labels needed. For reasons apparent later, the second and third mailings will be facilitated if the label sets are duplicated such that each page of labels is identical across sets. For example, if the first page of labels used for the initial mailing contains 10 names in each of 2 columns, the first page of labels in the sets used for the second and third mailings should also contain these same names in the same order.

There are two suggested ways of accessing or creating these sets of labels. If the user has access to appropriate computer files, it may be possible to use these to generate the necessary current student, program completer, and program leaver lists. If so, the user should check with computer personnel to see if these lists can be printed directly onto mailing labels by the printer. Because of the great amount of preparation

QUESTIONNAIRE TYPE: _____

PROGRAM	A*	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q
A																	
B																	
C																	
D																	
E																	
F																	
G																	
H																	
I																	
J																	
K																	
L																	
TOTALS																	
**			A-B		D/C	C-D		G/F	G/C	D+G	J/C	C-J		M/L	M/C	J+M	P/C

*See attached sheet for column labels
**Method used for calculating given column figure

Figure 1: Return Rate Summary

RETURN RATE SUMMARY
-COLUMN LABEL KEY-

A - Initial number sent	
B - Number of non-deliverables and returned not-in-program	
C - Usable number sent	A-B
D - Number returned from 1st mailing	
E - Percent returned from 1st mailing	D/C
F - Number sent 2nd mailing	C-D
G - Number returned from 2nd mailing	
H - Percent of 2nd mailing sent that were returned	G/F
I - Percent of total sent that were returned after second mailing	G/C
J - Total number returned from both mailings	D+G
K - Percent returned from both mailings	J/C
L - Number sent 3rd mailing	C-J
M - Number returned from 3rd mailing	
N - Percent of 3rd mailing sent that were returned	M/L
O - Percent of total sent that were returned after third mailing	M/C
P - Total number returned from all mailings	J+M
Q - Percent returned from all mailings	P/C

Figure 1 (cont.): Return Rate Summary

time saved with computer printed labels, it is worth spending more initial time and effort to see if this can be done.

The second suggestion is that the user obtain blank labels onto which the lists may be photocopied. This should be done prior to the initial typing of the mailing lists as the typing master included with the blank labels is needed to determine the correct spacing. Most office supply companies should be able to supply the appropriate type of labels for the available photocopy system. If the user does not have access to a system that can print onto labels, it is advisable to check with local copying services to avoid the time-consuming task of retyping labels as needed for the second and third mailings.

Whatever method is used for obtaining label sets, they should be made separately for each program and for each questionnaire type. This will greatly facilitate the mailing process as all programs will not be surveyed at exactly the same time. Separation of labels by program will prevent the user from having to sort through many labels to identify the appropriate ones for each program.

The following procedures should be carried out separately for each program and for each type of questionnaire. A copy of the set of labels should be made and will serve as the master list for numbering questionnaires and determining which persons have returned theirs and do not need to be sent second and third mailings. It is convenient to assign each program evaluated with a letter of the alphabet. This same letter should be used with all types of questionnaires sent for a given program and should be recorded on each of that program's master lists.

The names on each list should then be numbered consecutively from 1 through the number of people on the list. For example, a nursing program has 100 current students and 50 graduates and a secretarial program has 200 current and 75 graduate students. Assigning the letter 'a' to the nursing program, the respective current and graduate master lists for nursing would be numbered 'a1' through 'a100' and 'a1' through 'a50'. Assigning the letter 'b' to the secretarial program, the current graduate master lists for this program would be numbered 'b1' through 'b200' and 'b1' through 'b75', respectively.

The MCC staff numbered each of the lists down the column and found that consistently numbering in this same manner facilitated the mailing process (as labels may then always be pulled from the sheets in the same order). Whether the user numbers down the columns or across the rows, it is therefore recommended that the same order always be used. Once these master lists are completed, they will be used for determining questionnaires numbers for all three mailings.

When the user is ready to mail out a certain type of questionnaire for a program, the questionnaires must be numbered according to the appropriate master list. In the example above, the numbers 'a1' through 'a100', consecutively, should be typed in the upper right hand corners of the questionnaires to be sent to current nursing students. These numbers will serve to identify which students have returned the questionnaires after each mailing and which ones need to be contacted again.

Once a set of questionnaires has been sent, the user must keep track of which ones are non-deliverable, which are returned completed, etc. The first page of the Return Log used by the MCC staff for this purpose is

presented in Figure 2. Prior to the initial mailing, a Return Log with the required number of pages, should be assembled for each program. The logging procedures used by the MCC staff are described in Figure 3. The procedures used by the MCC staff for the second and third mailing (follow-ups) and for preparing the Employer questionnaire for mailing are also presented, in Figures 4 and 5, respectively.

At various times throughout the MCC project, seven different staff members were involved in the mailing and return logging procedures. Therefore, although the procedures described in this section were relatively simple to carry out, it was necessary to specify them in step by step detail to assure consistency across personnel. The procedure specifications identified above are included here in case the user may wish to use them as guidelines.

RETURN LOG

PAGE ___ of ___

QUESTIONNAIRE TYPE: _____

SCHOOL: _____ PROGRAM: _____

ID#	MAILING #: 1 SENT	1 RECD	2 SENT	2 RECD	3 SENT	3 RECD	NOT USABLE	OK
01								
02								
03								
04								
05								
06								
07								
08								
09								
10								
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								
21								
22								
23								
24								
25								

ID#	MAILING #: 1 SENT	1 RECD	2 SENT	2 RECD	3 SENT	3 RECD	NOT USABLE
26							
27							
28							
29							
30							
31							
32							
33							
34							
35							
36							
37							
38							
39							
40							
41							
42							
43							
44							
45							
46							
47							
48							
49							
50							

NOT USABLE CODE:

ND: NOT DELIVERABLE

NIP: NOT IN PROGRAM (RETURNED BLANK)

IRP: INCORRECT RESPONSE PATTERN

Figure 2

QUESTIONNAIRE LOGGING PROCEDURES

The following steps are suggested for logging returned questionnaires as they seem to take the least amount of time and lead to the least amount of confusion.

1. Sort questionnaires by type, placing all current student questionnaires together, all student follow-ups together, etc.
   At the present time, we will be receiving four types of questionnaires:
   a. Current Student
   b. Student Follow-up
   c. Occupational Community
   d. Employer

Proceed through the following steps for one type of questionnaire at a time.

2. Sort questionnaires by program. This is indicated by the letter typed in the upper right hand corner. For example, place all Nursing (program 'a') returns together.

3. For each program, place the questionnaires in order by the number in the upper right hand corner. This makes the actual logging much easier as you won't have to shift back and forth among pages to find each number.

4. At the front of the files for each questionnaire type, there is a separate return log for each program. For each returned questionnaire, cross off the corresponding number on the Return Log.

5.

5. Indicate the date that the questionnaire is logged in the appropriate column, either 1st, 2nd, or 3rd Mailing. To determine which mailing column is appropriate, check the 'Mailing Date' list on the bulletin board. This list shows how many mailings have been sent for each program and the date each was sent.

6. If a blank questionnaire is returned, this indicates that the person is/was not in the program. Therefore, writer NIP in the 'not usable' column.

7. Once the numbers are crossed out and the date received recorded for all questionnaires in a program, file the questionnaires in the appropriate folder.

LOGGING OF NON-DELIVERABLES

These should be recorded separately from completed, returned questionnaires. Follow the same procedures for these as listed above, with the following exceptions:

1. Place ND in the 'non-usualbe' column. (Make sure to again cross out the appropriate number for each questionnaire and record the date.)

2. Instead of filing the questionnaires in the files for each program, put them in the box for logged non-deliverables.

Figure 3: Questionnaire Logging Procedures

PROCEDURES FOR 2nd and 3rd MAILINGS (FOLLOW-UPS)

I. Preparing Master Lists and Labels

Before a 2nd or 3rd mailing is sent, the names of all those persons who have already returned their questionnaires must be crossed off the lists so they won't be sent another. To accomplish this, do the following steps for one program at a time.

1. The following three things (for the appropriate questionnaire) will be needed for each program:
   A. Return Log
   B. Program Master List
   C. Mailing Label set

2. For each questionnaire which has been returned (or was non-deliverable, etc.), its number has been crossed off on the appropriate return log. The names on the master list are numbered according to which numbered questionnaire each received.

   Cross off each name on the master list which has a number corresponding to one which has been crossed off on the return log.

3. Next, use the master list to cross off the mailing labels. Cross off all names on the mailing labels which are crossed off on the master list.

II. Mailing Preparation

1. For each program, pull each label that isn't crossed off and put it on an envelope. Go down the colums rather than across the rows. Make sure that these are kept in the same order as they are taken from the sheet. Put a rubber band around the envelopes for each program and make sure to put a note with each, labelling which program the envelopes are for. Set these aside until they are to be stuffed. (For the programs with a lot of envelopes (i.e. Nursing) keep each of these in a separate box.)

2. Use the master list for preparing the appropriate questionnaires. For each name that is not crossed off, type the program letter and the number corresponding to that name in the upper right-hand corner of the questionnaire.

   Again, make sure to go down the column and keep the questionnaires in order.

3. When stuffing envelopes, use the master list for checking. Make sure that the name on the envelope and the number on the questionnaire match as they should according to the master list. Check every one, as this match-up is very important.

   When the cover letter is personalized, also make sure that the name on the letter matches the name on the envelope.

Figure 4: Procedures For 2nd and 3rd Mailings

4. Except for the Occupational Community letters, each envelope should contain a cover letter, questionnaire, and folded return envelope. For the Occupational Community, each envelope should contain a cover letter, a questionnaire, a copy of the program's curriculum, a copy of its list of competencies and a folded return envelope.

Figure 4 (cont.): Procedures For 2nd and 3rd Mailings

EMPLOYER QUESTIONNAIRE: PROCEDURES

I. Preparing the labels/master lists: Do for one program at a time.

1. Pull out all questionnaires for which no employer is indicated and all those on which 'job not related to training' is checked on item #10.

2. Put all the remaining student follow-up questionnaires in order based on the number typed in the upper right-hand corner of the questionnaire.

3. Type a lable for the employer listed on the questionnaire. If the student also provided the name of his/her supervisor, type this on the first line of the label after ATTN:. Use all caps for this name.

i.e. ATTN: DR. ZELEMA HARRIS
Metropolitan Community Colleges
560 Westport Road
a7 Kansas City, Missouri 64111

4. On the lower left-hand corner of the label, type the letter and number shown on the questionnaire.

When you have finished getting this information from the questionnaire, make a check in the upper right-hand corner of it and initial it. File these in the box labeled "Graduates - Logged:. This will keep these separate from more questionnaires coming in which still need to have the information taken from them.

5. Use the number and letter to look up the name of the student who sent back the questionnaire. These names can be gotten from the graduate student master lists filed in the front of the third file drawer. Type the student's name on the label directly following the label of his/her employer. Also, type the letter and number on the lower left-hand corner of the label.

6. Continue this for all questionnaires in the program.
*Note: All of the labels should be typed down the column rather than across. Use only the first ten labels in each column, leaving the last one blank. This way, the student name will always come directly under that of his/her employer.

7. On the bottom of the sheet, indicate the name of the program, its letter, and the school. Also write 'employer'.

i.e. Nurs - A - PV Employer

Figure 5: Employer Questionnaire Procedures

8. Make three copies of this list on regular paper, from the xerox machine in the mailroom. Give two of these to Dawn and keep one copy for doing number II below.

9. Have Deloise make three sets of mailing labels from the list. Iva knows the correct budget code and how to fill out the copying request form.

II. Preparing the 'Employer Survey' Questionnaire:

1. Type the appropriate letter and number on the upper right-hand corner of the questionnaire. Keep questionnaires grouped by program and then in order from smallest number to the largest.

2. On the questionnaire itself, under section I. Personal Information, type the student's name in the 'A. Employee' name space.

3. If the student gave the name of a supervisor, type the supervisor's name in the space for 'B. Indicated Employer'. If no supervisor was named, type the name of the company in the employer space. Type in the name of the city where the firm is located.

   Don't fill in any other parts of this questionnaire.

Figure 5 (Cont.): Employer Questionnaire Procedures

DATA ANALYSES

Paired Comparisons Analysis

The user must perform paired comparison analyses to analyze the questionnaire responses of both the Primary and the Secondary Advisory Committees. A separate analyses is performed for the set of criterion statements and for each of the sets of sub-criterion statements.

A. Retention or Deletion of Judges

As the first step in the analyses of each set of criterion statements, the user must eliminate the responses of those committee members (hereafter referred to as judges) who either: a) left one or more pairs blank, checking neither statement as more important, b) checked both statements in any given pair, or c) exhibited an extreme pattern of inconsistent responses. In consistent responses are evident when a large number of circular triads are made by a judge. An example of what is meant by a circular triad is the situation in which a judge rates A as more important than B, B as more important than C, yet inconsistently follows by rating C as more important than A.

The number of circular triads made by judge can be obtained from a table such as that shown in Table 1 . For each judge, her/his responses are arranged in such a matrix where the statement number is given as both the row and column headings. When the column stimulus (or statement number) is judged more favorable than the row stimulus, a 1 is entered in the corresponding cell of the table. For example, the 1 (A) in column 2/row 1 indicates that statement 2 was rated more favorable than statement 1. If the column stimulus is judged less favorable than the row stimulus, a 0

is entered in that cell. In cell (B) therefore, the 0 indicates that statement 1 was judged less favorable than statement 2.

Table 1

Comparative Judgements for a Judge with 3 Circular Triads

Statement	1	2	3	4	5	
1	-	1(A)	1	0	1	
2	0(B)	-	0	1	1	
3	0	1	-	0	0	
4	1	0	1	-	1	
5	0	0	1	0	-	
a	1	2	3	1	3	
a^2	1	4	9	1	9	$\Sigma a^2 = 24$

Once cell entries have been made for a given judge, 'a' and 'a^2' should be calculated. The 'a' value is the sum of the entires in a given column, while 'a^2' is simple the square of each of these values.

The number of circular triads, 'd', made by the judge is given by

$$d = (1/12)(n)(n-1)(2n-1) - (\Sigma a^2)/2$$

where: d = number of circular triads

n = number of statements in the set

Σa^2 = sum of a^2 values for all columns

For the example shown in Table 1, the formula is worked as follows:

$$d = (1/12)(5)(5-1)(10-1) - (24)/2$$

$$= 15 - 12$$

$$= 3$$

Therefore, Table 1 illustrates the case of a judge who made 3 inconsistent responses. Finally, the user must decide whether or not this is large enough a number to eliminate this judge's responses from further analyses. Table 2 indicates the standards for retaining or eliminating a judge based on the calculated 'd' value and the number of statements in the set.

Table 2

Judge Retention Criteria

Number of Statements in Set (n)	Retain if 'd' equals or is less than:
10	21
9	14
8	8
7	4
6	3
5	2
4	0
3	0

The responses of those judges who have a greater number of discrepancies than the criteria given in this table should not be included in the paired comparison analyses described below.

B. Analyses Procedures

The example used to illustrate the actual paired comparison procedures comes from the MCC evaluation and is based on the Primary Advisory Committee's responses to the model's 7 criteria. First, responses to the paired statements must be arranged in a F matrix which contains the frequencies with which each column criterion measure was judged more important than the row criterion measure. The F matrix is presented in Table 3.

Table 3

The F Matrix for 7 Statements Judged by 100 Individuals

Statement	1	2	3	4	5	6	7
1	-	13	39	39**	10	11	15
2	77	-	77	82	34	41	24
3	51	13	-	41	23	9	10
4	51*	8	49	-	14	10	12
5	80	56	67	76	-	49	35
6	79	49	81	80	41	-	22
7	75	66	80	78	55	68	-

To illustrate, inspection of the first column entries shows that 51* judges believed that criterion measure one, "Program's relationship to job market profile," was more important in the evaluation of vocational education than was criterion measure four, the "Program's level of community support." The total number of comparative judgements for each pair of statements was 90, the number of individuals making judgments. By dividing each cell entry presented in Table 3 by the total number of respondents (n), the proportional (P_{ij}) entries shown in Table 4 were obtained.

Using a table of normal deviates corresponding to proportions of a dichotomized unit normal distribution (shown in Table 5) is possible to find corresponding Z_{ij} values for the P_{ij} entries of Table 4. For example, returning to the comparison of criterion measures one and four, it was observed that 51 individuals (P of .567) indicated a preference for criterion measure one over four. By looking up the $P_{4,1}$ value of .567 on the table of normal deviates, one can obtain a corresponding $Z_{4,1}$ value of .169.

This substitution procedure is used to provide the Z_{ij} values, as illustrated in Table 6 .

Table 4

The P Matrix Corresponding to the F Matrix of Table 3

Statement	1	2	3	4	5	6	7	
1	.500	.144	.433	.433	.111	.122	.167	
2	.856	.500	.856	.911	.378	.456	.267	
3	.567	.144	.500	.456	.256	.100	.111	
4	.567	.089	.544	.500	.156	.111	.133	
5	.889	.622	.744	.844	.500	.544	.389	
6	.878	.544	.900	.889	.456	.500	.244	
7	.833	.733	.889	.867	.611	.756	.500	
Sums	5.090	2.776	4.866	4.900	2.468	2.589	1.811	$\Sigma = 24.5$

TABLE 5

Table of normal deviates (z) corresponding to proportions (p) of a dichotomized unit normal distribution.

p	0	1	2	3	4	5	6	7	8	9
.50	2.326	2.323	2.319	2.315	2.312	2.308	2.304	2.301	2.297	2.294
.51	2.290	2.287	2.283	2.280	2.276	2.273	2.269	2.265	2.262	2.258
.52	2.255	2.251	2.248	2.244	2.241	2.237	2.234	2.230	2.227	2.223
.53	2.220	2.216	2.213	2.209	2.206	2.202	2.199	2.195	2.192	2.188
.54	2.185	2.181	2.178	2.174	2.171	2.167	2.164	2.160	2.157	2.153
.55	2.150	2.146	2.143	2.139	2.136	2.132	2.129	2.125	2.122	2.118
.56	2.115	2.111	2.108	2.104	2.101	2.097	2.094	2.090	2.087	2.083
.57	2.080	2.076	2.073	2.069	2.066	2.062	2.059	2.055	2.052	2.048
.58	2.045	2.041	2.038	2.034	2.031	2.027	2.024	2.020	2.017	2.013
.59	2.010	2.006	2.003	1.999	1.996	1.992	1.989	1.985	1.982	1.978
.60	1.975	1.971	1.968	1.964	1.961	1.957	1.954	1.950	1.947	1.943
.61	1.940	1.936	1.933	1.929	1.926	1.922	1.919	1.915	1.912	1.908
.62	1.905	1.901	1.898	1.894	1.891	1.887	1.884	1.880	1.877	1.873
.63	1.870	1.866	1.863	1.859	1.856	1.852	1.849	1.845	1.842	1.838
.64	1.835	1.831	1.828	1.824	1.821	1.817	1.814	1.810	1.807	1.803
.65	1.800	1.796	1.793	1.789	1.786	1.782	1.779	1.775	1.772	1.768
.66	1.765	1.761	1.758	1.754	1.751	1.747	1.744	1.740	1.737	1.733
.67	1.730	1.726	1.723	1.719	1.716	1.712	1.709	1.705	1.702	1.698
.68	1.695	1.691	1.688	1.684	1.681	1.677	1.674	1.670	1.667	1.663
.69	1.660	1.656	1.653	1.649	1.646	1.642	1.639	1.635	1.632	1.628
.70	1.625	1.621	1.618	1.614	1.611	1.607	1.604	1.600	1.597	1.593
.71	1.590	1.586	1.583	1.579	1.576	1.572	1.569	1.565	1.562	1.558
.72	1.555	1.551	1.548	1.544	1.541	1.537	1.534	1.530	1.527	1.523
.73	1.520	1.516	1.513	1.509	1.506	1.502	1.499	1.495	1.492	1.488
.74	1.485	1.481	1.478	1.474	1.471	1.467	1.464	1.460	1.457	1.453
.75	1.450	1.446	1.443	1.439	1.436	1.432	1.429	1.425	1.422	1.418
.76	1.415	1.411	1.408	1.404	1.401	1.397	1.394	1.390	1.387	1.383
.77	1.380	1.376	1.373	1.369	1.366	1.362	1.359	1.355	1.352	1.348
.78	1.345	1.341	1.338	1.334	1.331	1.327	1.324	1.320	1.317	1.313
.79	1.310	1.306	1.303	1.299	1.296	1.292	1.289	1.285	1.282	1.278
.80	1.275	1.271	1.268	1.264	1.261	1.257	1.254	1.250	1.247	1.243
.81	1.240	1.236	1.233	1.229	1.226	1.222	1.219	1.215	1.212	1.208
.82	1.204	1.201	1.197	1.194	1.190	1.187	1.183	1.180	1.176	1.173
.83	1.169	1.166	1.162	1.159	1.155	1.152	1.148	1.145	1.141	1.138
.84	1.134	1.131	1.127	1.124	1.120	1.117	1.113	1.110	1.106	1.103
.85	1.099	1.096	1.092	1.089	1.085	1.082	1.078	1.075	1.071	1.068
.86	1.064	1.061	1.057	1.054	1.050	1.047	1.043	1.040	1.036	1.033
.87	1.029	1.026	1.022	1.019	1.015	1.012	1.008	1.005	1.001	.998
.88	.994	.991	.987	.984	.980	.977	.973	.970	.966	.963
.89	.959	.955	.952	.948	.945	.941	.938	.934	.931	.927
.90	.923	.920	.916	.913	.909	.906	.902	.899	.895	.891
.91	.888	.884	.881	.877	.874	.870	.866	.863	.859	.856
.92	.852	.849	.845	.842	.838	.834	.831	.827	.824	.820
.93	.817	.813	.809	.806	.802	.799	.795	.792	.788	.784
.94	.781	.777	.774	.770	.767	.763	.760	.756	.752	.749
.95	.745	.742	.738	.735	.731	.728	.724	.720	.717	.713
.96	.710	.706	.703	.699	.696	.692	.689	.685	.681	.678
.97	.674	.671	.667	.664	.660	.657	.653	.650	.646	.643
.98	.639	.636	.632	.629	.625	.622	.618	.615	.611	.608
.99	.604	.601	.597	.594	.590	.587	.583	.580	.576	.573
.00	.569	.566	.562	.559	.555	.552	.548	.545	.541	.538
.01	.535	.531	.528	.524	.521	.517	.514	.510	.507	.503
.02	.500	.496	.493	.489	.486	.482	.479	.475	.472	.468
.03	.465	.461	.458	.454	.451	.447	.444	.440	.437	.433
.04	.430	.426	.423	.419	.416	.412	.409	.405	.402	.398
.05	.395	.391	.388	.384	.381	.377	.374	.370	.367	.363
.06	.360	.356	.353	.349	.346	.342	.339	.335	.332	.328
.07	.325	.321	.318	.314	.311	.307	.304	.300	.297	.293
.08	.290	.286	.283	.279	.276	.272	.269	.265	.262	.258
.09	.255	.251	.248	.244	.241	.237	.234	.230	.227	.223
.10	.220	.216	.213	.209	.206	.202	.199	.195	.192	.188
.11	.185	.181	.178	.174	.171	.167	.164	.160	.157	.153
.12	.150	.146	.143	.139	.136	.132	.129	.125	.122	.118
.13	.115	.111	.108	.104	.101	.097	.094	.090	.087	.083
.14	.080	.076	.073	.069	.066	.062	.059	.055	.052	.048
.15	.045	.041	.038	.034	.031	.027	.024	.020	.017	.013
.16	.010	.006	.003	.001	.004	.008	.011	.015	.018	.022
.17	.025	.029	.032	.036	.039	.043	.046	.050	.053	.057
.18	.060	.064	.067	.071	.074	.078	.081	.085	.088	.092
.19	.095	.099	.102	.106	.109	.113	.116	.120	.123	.127
.20	.130	.134	.137	.141	.144	.148	.151	.155	.158	.162
.21	.165	.169	.172	.176	.179	.183	.186	.190	.193	.197
.22	.200	.204	.207	.211	.214	.218	.221	.225	.228	.232
.23	.235	.239	.242	.246	.249	.253	.256	.260	.263	.267
.24	.271	.274	.278	.281	.285	.288	.292	.295	.299	.302
.25	.306	.309	.313	.316	.320	.323	.327	.330	.334	.337
.26	.341	.344	.348	.351	.355	.358	.362	.365	.369	.372
.27	.376	.379	.383	.386	.390	.393	.397	.400	.404	.407
.28	.411	.414	.418	.421	.425	.428	.432	.435	.439	.442
.29	.446	.449	.453	.456	.460	.463	.467	.470	.474	.477
.30	.482	.485	.489	.492	.496	.499	.503	.507	.510	.514
.31	.517	.521	.524	.528	.531	.535	.538	.542	.545	.549
.32	.553	.556	.560	.563	.567	.570	.574	.578	.581	.585
.33	.588	.592	.595	.599	.603	.606	.610	.613	.617	.621
.34	.624	.628	.631	.635	.639	.642	.646	.649	.653	.657
.35	.660	.664	.668	.671	.675	.679	.682	.686	.690	.693
.36	.697	.701	.705	.708	.712	.716	.719	.723	.727	.731
.37	.734	.738	.742	.745	.749	.753	.757	.760	.764	.768
.38	.772	.775	.779	.783	.787	.790	.794	.798	.802	.806
.39	.810	.813	.817	.821	.825	.829	.832	.836	.840	.844
.40	.848	.852	.855	.859	.863	.867	.871	.875	.879	.882
.41	.886	.890	.894	.898	.902	.906	.910	.914	.917	.921
.42	.925	.929	.933	.937	.941	.945	.949	.953	.957	.961
.43	.965	.969	.973	.977	.981	.985	.989	.993	.997	1.001
.44	1.005	1.009	1.013	1.017	1.022	1.026	1.030	1.034	1.038	1.042
.45	1.046	1.050	1.054	1.058	1.063	1.067	1.071	1.075	1.079	1.084
.46	1.088	1.092	1.096	1.101	1.105	1.109	1.113	1.118	1.122	1.126
.47	1.130	1.135	1.139	1.143	1.148	1.152	1.156	1.161	1.165	1.169
.48	1.174	1.178	1.183	1.187	1.191	1.196	1.200	1.205	1.209	1.214
.49	1.218	1.223	1.227	1.232	1.236	1.241	1.245	1.250	1.255	1.259

TABLE 5 (Cont.)

P	0	1	2	3	4	5	6	7	8	9
49	- 025	- 023	- 020	- 018	- 015	- 013	- 010	- 008	- 005	- 003
48	- 030	- 028	- 025	- 023	- 020	- 018	- 015	- 013	- 010	- 008
47	- 075	- 074	- 070	- 068	- 065	- 063	- 060	- 058	- 055	- 053
46	- 100	- 098	- 095	- 093	- 090	- 088	- 085	- 083	- 080	- 078
45	- 126	- 123	- 121	- 118	- 116	- 113	- 111	- 108	- 105	- 103
44	- 151	- 148	- 146	- 143	- 141	- 138	- 136	- 133	- 131	- 128
43	- 176	- 174	- 171	- 169	- 166	- 164	- 161	- 159	- 156	- 154
42	- 202	- 199	- 197	- 194	- 192	- 189	- 187	- 184	- 181	- 179
41	- 228	- 225	- 222	- 220	- 217	- 215	- 212	- 210	- 207	- 204
40	- 254	- 251	- 248	- 246	- 243	- 240	- 238	- 235	- 233	- 230
39	- 279	- 277	- 274	- 272	- 269	- 266	- 264	- 261	- 259	- 256
38	- 305	- 303	- 300	- 298	- 295	- 292	- 290	- 287	- 285	- 282
37	- 331	- 329	- 327	- 324	- 321	- 319	- 316	- 313	- 311	- 308
36	- 357	- 356	- 353	- 350	- 348	- 345	- 343	- 340	- 337	- 335
35	- 383	- 381	- 380	- 377	- 375	- 372	- 369	- 366	- 364	- 361
34	- 412	- 410	- 407	- 404	- 402	- 399	- 396	- 393	- 391	- 388
33	- 440	- 438	- 434	- 432	- 429	- 426	- 423	- 421	- 418	- 415
32	- 468	- 465	- 462	- 459	- 457	- 454	- 451	- 448	- 445	- 443
31	- 496	- 493	- 490	- 487	- 484	- 482	- 479	- 476	- 473	- 470
30	- 524	- 522	- 519	- 516	- 513	- 510	- 507	- 504	- 502	- 499
29	- 553	- 550	- 548	- 545	- 542	- 539	- 536	- 533	- 530	- 527
28	- 583	- 580	- 577	- 574	- 571	- 568	- 565	- 562	- 559	- 556
27	- 613	- 610	- 607	- 604	- 601	- 598	- 595	- 592	- 589	- 586
26	- 643	- 640	- 637	- 634	- 631	- 628	- 625	- 622	- 619	- 616
25	- 674	- 671	- 668	- 665	- 662	- 659	- 656	- 653	- 650	- 646
24	- 706	- 703	- 700	- 697	- 694	- 690	- 687	- 684	- 681	- 678
23	- 737	- 736	- 732	- 729	- 726	- 723	- 719	- 716	- 713	- 710
22	- 772	- 769	- 765	- 762	- 759	- 755	- 752	- 749	- 745	- 742
21	- 809	- 805	- 802	- 798	- 795	- 791	- 788	- 785	- 781	- 778
20	- 842	- 838	- 834	- 831	- 827	- 824	- 820	- 81	- 813	- 810
19	- 878	- 874	- 871	- 867	- 863	- 860	- 856	- 852	- 849	- 845
18	- 915	- 912	- 908	- 904	- 901	- 897	- 893	- 890	- 886	- 882
17	- 954	- 950	- 946	- 942	- 938	- 935	- 931	- 927	- 923	- 919
16	- 994	- 990	- 986	- 982	- 978	- 974	- 970	- 966	- 962	- 958
15	- 1.036	- 1.032	- 1.028	- 1.024	- 1.019	- 1.015	- 1.011	- 1.007	- 1.003	- 999
14	- 1.080	- 1.075	- 1.071	- 1.067	- 1.063	- 1.058	- 1.054	- 1.050	- 1.045	- 1.041
13	- 1.126	- 1.122	- 1.117	- 1.112	- 1.108	- 1.103	- 1.098	- 1.094	- 1.089	- 1.085
12	- 1.175	- 1.170	- 1.165	- 1.160	- 1.155	- 1.150	- 1.146	- 1.141	- 1.136	- 1.131
11	- 1.227	- 1.221	- 1.216	- 1.211	- 1.206	- 1.200	- 1.195	- 1.190	- 1.185	- 1.180
10	- 1.282	- 1.276	- 1.270	- 1.265	- 1.259	- 1.254	- 1.248	- 1.243	- 1.237	- 1.232
09	- 1.341	- 1.335	- 1.329	- 1.323	- 1.317	- 1.311	- 1.305	- 1.299	- 1.293	- 1.287
08	- 1.405	- 1.398	- 1.392	- 1.385	- 1.379	- 1.372	- 1.366	- 1.359	- 1.353	- 1.347
07	- 1.476	- 1.468	- 1.461	- 1.454	- 1.447	- 1.440	- 1.433	- 1.426	- 1.419	- 1.412
06	- 1.555	- 1.546	- 1.538	- 1.530	- 1.522	- 1.514	- 1.506	- 1.499	- 1.491	- 1.483
05	- 1.643	- 1.633	- 1.626	- 1.616	- 1.607	- 1.598	- 1.589	- 1.580	- 1.572	- 1.563
04	- 1.751	- 1.739	- 1.728	- 1.717	- 1.706	- 1.695	- 1.685	- 1.674	- 1.663	- 1.652
03	- 1.881	- 1.866	- 1.852	- 1.838	- 1.825	- 1.812	- 1.799	- 1.787	- 1.774	- 1.762
02	- 2.044	- 2.028	- 2.014	- 1.995	- 1.977	- 1.960	- 1.944	- 1.927	- 1.911	- 1.895
01	- 2.326	- 2.290	- 2.257	- 2.226	- 2.197	- 2.170	- 2.144	- 2.120	- 2.095	- 2.071
00		- 4.000	- 2.828	- 2.748	- 2.692	- 2.576	- 2.512	- 2.447	- 2.409	- 2.366

Table 6

The Z Matrix Corresponding to the P Matrix of Table 4

Statement	1	2	3	4	5	6	7	
1	.000	-1.063	-.169	-.169	-1.221	-1.165	-.966	
2	1.063	.000	1.063	1.347	-.311	-.111	-.622	
3	.169	-1.063	.000	-.111	-.656	-1.282	-1.221	
4	.169	-1.347	.111	.000	-1.011	-1.221	-1.112	
5	1.221	.311	.656	1.011	.000	.111	-.282	
6	1.165	.111	1.282	1.221	-.111	.000	-.693	
7	.966	.622	1.221	1.112	.282	.693	.000	
(Sums) Σz	4.753	-2.429	4.164	4.411	-3.028	-2.975	-4.868	$\Sigma\Sigma Z = 0$
Ans.: PC Weights $\bar{z}$	.679	-.347	.594	.630	-.433	-.424	-.699	$\Sigma\bar{z} = 0$

Column entries of the z Table must then be summed. The mean Z values or the scale value of each statement in terms of its deviation from the mean of all scale values is to be computed by dividing the column totals by n, the number of paired statements. These mean Z values (scale values) are the resultant criterion weights, as the examples in row (2) at the bottom of Table 6 show. As a check upon one's calculations, the sum of the scale values in deviation form may be obtained and this sum should be equal to zero. Negative weights are interpreted as being judged less favorable than the average of the scale values of all statements. Positive values are judged to be more favorable than the average.

In order to make the criterion weights more useful to the evaluation model, the user must transform the paired comparison weights to proportional

weights. Proportional weights are calculated by adding a constant of one to each of the weights and dividing each adjusted weight (weight + 1) by the total of all adjusted weights (the total will always equal the number of statements being compared). In this manner proportional weights reflect the "proportional importance" placed on each criterion or sub-criterion in relationship to all other criteria, while also simplifying scale development by producing weights which sum to 1.00 (or sum to 100 by multiplying each proportional weight by 100). For example, the paired comparison and the proportional weights for the seven criteria were calculated as follows:

	Paired-Comparison Weight	Proportional Weight
Program's relationship to job market profile.	.679	(1 + .679)/7 = .24
Program's level of community support.	-.347	(1 - .347)/7 = .10
Program's success in meeting vocational aspirations of clientele.	.594	(1 + .594)/7 = .23
Program's success in terms of student performance.	.630	(1 + .630)/7 = .23
Program's cost effectiveness.	-.433	(1 - .433)/7 = .08
Program's success in reaching handicapped and disadvantaged.	-.424	(1 - .424)/7 = .08
Program's success in eliminating sex bias and sex-role stereotyping.	-.699	(1 - .699)/7 = .04

Analysis of these weights suggested that the advisory committee split the criteria into two groups of importance. A program's relationship to the job market profile, success in meeting vocational aspirations of clientele and success in terms of student performance were rated as more important; these criteria will therefore have a greater impact on the final composite evaluation of each vocational program. A program's level of community support, cost effectiveness, success in reaching handicapped and disadvantaged

and success in eliminating sex bias and sex-role stereotyping will have a lesser impact on the final composite evaluation.

Finally, the user should note that the procedures described above may not be used with all data sets. When p values (see Table 4) equal to or greater than .98 and p values equal to or less than .02 are present, these procedures are not appropriate, for statistical reasons. If these p values occur in the analyses of a set of statements, the user should consult the section in Edwards (1957, p. 40) which details procedures for analyzing incomplete data.

Current Student Data[3]

Three of the model's sub-criteria are directly accessible using single items from the Current Student Questionnaire (see Figure 6) as follows:

	Sub-Criterion	Item
II-E	Current student satisfaction with the skills training offered	13
II-F	Current student satisfaction with the knowledge training offered	12
II-G	Current student ratings of program quality ('Your training program')	8

For each of these items, the percentage of students responding to each alternative must be calculated. When there are missing values for an item, only the number of students who actually responded to the question should be used to figure percentages. For example, if there are 100 questionnaires returned for a program but only 90 students answered item #8. If 40 of these

[3]All analyses from this point on are to be performed separately for each program being evaluated.

CURRENT STUDENT QUESTIONNAIRE

ABOUT YOU

1. How old are you? _____ years

2. Please indicate your sex ☐ female ☐ male

3. Are you handicapped? ☐ yes ☐ no (If no, go to question number 6)

4. If you are handicapped, please describe your handicapping condition.
   - ☐ physically handicapped
   - ☐ visually handicapped
   - ☐ blind
   - ☐ speech impaired
   - ☐ deaf
   - ☐ hard of hearing

5. Are you now experiencing, or have you experienced any difficulty in your vocational training due to your handicap? ☐ yes ☐ no

   If yes, please describe _____

YOUR OBJECTIVES

6. I enrolled to:
   - ☐ learn a new occupation.
   - ☐ satisfy in-service training requirements.
   - ☐ improve my present skills in this field.
   - ☐ take required courses for transfer to another college.
   - ☐ gain personal pleasure.

YOUR PAST

7. Before enrolling in this program:
   - ☐ I was unemployed and not looking for full-time work.
   - ☐ I was out of work and looking for a job.
   - ☐ I was (or am) working full-time.
   - ☐ I was (or am) working part-time.

YOUR TRAINING

8. Please rate the following by checking one of the blanks in each case.

	Excellent	Good	Aver	Poor
Your college	☐	☐	☐	☐
Your training program	☐	☐	☐	☐
Instruction	☐	☐	☐	☐
Shop or lab	☐	☐	☐	☐
Equipment & Apparatus	☐	☐	☐	☐

9. Have you ever experienced any problems with your coursework?
   ☐ yes ☐ no (If no, then go to item number 12)

10. Did you seek assistance with your coursework?
    ☐ yes ☐ no

11. Were you able to get assistance with your coursework?
    ☐ yes ☐ no
    If yes, please specify where or from whom you received assistance _____

The educational community often makes a distinction between knowledge and skills training. Knowledge is traditionally thought of as the instruction of how to perform a task, whereas skills training actually allows an individual to "do" or perform the task.

Knowledge = "how to..."
Skills Training = "to do..."

This distinction is referred to in the next four questions.

12. At this time, how satisfied are you with the knowledge offered by your program of study?
    (check only one)
    - ☐ I am highly satisfied.
    - ☐ I am satisfied.
    - ☐ I am unsatisfied.
    - ☐ I am highly unsatisfied.

13. At this time, how satisfied are you with the skills training offered by your program of study?
    (check only one)
    - ☐ I am highly satisfied.
    - ☐ I am satisfied.
    - ☐ I am unsatisfied.
    - ☐ I am highly unsatisfied.

14. Knowing what you know at this time, what, if any, additional knowledge or skills training do you believe should be offered by your program of study?
    Specify _____

15. As you perceive your potential job market, are there any skills or knowledge areas that you believe could be deleted from the present curriculum?

    Specify _____

We welcome your frank comments about your college and your program on the back of this sheet. The information will be used as guidelines for program improvement only and your comments will be considered STRICTLY CONFIDENTIAL. The space may also be used to explain some of the answers given on this page.

PLEASE RETURN THE QUESTIONNAIRE IN THE ENCLOSED ENVELOPE

Figure 6

checked 'Excellent' and 50 checked 'Good', the percentages would be 40/90 = 44% and 50/90 = 56%, respectively. Further, if 85 students checked 'Satisfied' on item #12 and 10 students checked 'Unsatisfied', a total of 95 students responded to this item. In this case the respective percentages would be 85/95 = 89% and 10/95 = 11%, etc. This method for handling missing data should be used in analyzing items from the Student Follow-up, Employer, and Occupational Community Questionnaires also.

Data for a fourth sub-criterion is also to be taken from the Current Student Questionnaire, but is based on a combination of responses to the following three items:

Sub-Criterion		Items
VI-D	Availability of academic assistance to disadvantaged students	9, 10, & 11

In this case the term 'disadvantaged' refers to those students who are academically disadvantaged only. The user must first identify students who are disadvantaged and who have sought assistance to deal with their disadvantages. This group consists of those students who check 'Yes' for both items #9 and #10. The user must then calculate the percentage of this group who were able to get assistance. For example, only 12 students, of 100 who responded, answered 'Yes' to both items 9 and 10. Of these 12, 9 said they were able to get assistance (checked 'Yes' on item 11) and 3 said they were not (checked 'No'). The percentage meeting this sub-criterion they is 9/12 = 75%.

The percentages calculated for these four sub-criteria and for all others described as follows, should be transferred to the appropriate

places on the Attainment Rating Form. This form is discussed in detail later in this section.

Graduate Student Data

Graduate here refers to both program completers and program leavers. The responses of both of these groups to the Student Follow-up Questionnaire (see Figure 7) are to be combined before analysis is done.

The data for five sub-criteria are contained on this questionnaire. For the first sub-criterion, responses of all graduates who return the questionnaire are included in the analysis. This sub-criterion and its corresponding item are:

	Sub-Criterion	Item
II-D	Employed graduate ratings of program quality	16 ('Your training program')

The user must calculate the percentage of graduates checking each of the alternatives.

For the remaining four sub-criteria, the responses of all graduates who returned the questionnaire are not to be included. The user should therefore pay close attention to the following detailed discussion regarding selection of graduates for analyses.

The second sub-criterion and pertinent questionnaire items are:

	Sub-Criterion	Items
I-B	Program graduates' need for employment (% finding jobs)	6, 7, & 10

STUDENT FOLLOW-UP QUESTIONNAIRE

ABOUT YOU

1. How old are you? _____ years

2. Please indicate your sex ☐ female ☐ male

3. Are you handicapped? ☐ yes ☐ no

4. If you are handicapped, please describe your handicapping condition.
   - ☐ Physically handicapped.
   - ☐ Deaf.
   - ☐ Hard of hearing.
   - ☐ Speech impaired.
   - ☐ Visually handicapped.
   - ☐ Blind.

5. Did you experience any difficulty during your vocational training due to your handicap?
   ☐ yes ☐ no
   If yes, please describe _____

6. Are you currently
   - ☐ employed ☐ full time ☐ part time.
   - ☐ unemployed.
   - ☐ attending school ☐ full time ☐ part time.
   - ☐ serving full time in military.

7. If employed:

   _____
   name of company or organization

   _____
   street address city

   _____
   state zip code

   _____
   job title

   _____
   duties

   _____
   supervisor's name and title

8. If you are currently unemployed, please indicate the reason.
   - ☐ Cannot find full-time job in area of training.
   - ☐ Temporary cut-back by the employer.
   - ☐ Enrolled in school or college.
   - ☐ Do not want full-time work.
   - ☐ Other, specify _____

9. Did you complete the vocational program at your college?
   ☐ yes ☐ no

   If "no", please indicate the most likely reason for terminating the program before completion.
   - ☐ Change of occupational objective.
   - ☐ Financial reasons.
   - ☐ Dislike for the college.
   - ☐ Dislike for the program.
   - ☐ Dislike for the faculty.
   - ☐ Received all the education desired.
   - ☐ Transferred to another college.
   - ☐ Poor health.
   - ☐ Got a job in the same or a related vocational area.
   - ☐ Program not designed for my sex.
   - ☐ Other (specify) _____

WORKING ON A JOB

10. Which one of the following statements best describes the relationship between your present job and your training program. (check only one)
    - ☐ Job same for which trained.
    - ☐ Job highly related to the training.
    - ☐ Job somewhat related to the training.
    - ☐ Job not related to the training.

11. Are you employed in the Greater Kansas City Area?
    ☐ yes ☐ no

12. If you are not employed in the Greater Kansas City area, please indicate why.
    - ☐ Did not seek employment in area.
    - ☐ Could not find employment in area.
    - ☐ Other, please specify _____

13. What is your hourly rate at your present job? (check only one)
    - ☐ $2.00 to $2.50 per hour
    - ☐ $2.51 to $3.50 per hour
    - ☐ $3.51 to $4.50 per hour
    - ☐ $4.51 to $5.50 per hour
    - ☐ $5.51 to $7.00 per hour
    - ☐ $7.01 to $10.00 per hour
    - ☐ $10.01 or more per hour

Figure 7

14. If you are not paid an hourly wage, what is your monthly salary before taxes?
(check only one)
- ☐ Less than $250
- ☐ $250 to $349
- ☐ $350 to $449
- ☐ $450 to $599
- ☐ $600 to $799
- ☐ $800 to $999
- ☐ $1000 or more

ABOUT YOUR VOCATIONAL TRAINING

15. How helpful was each of the following in your search for a job?

	very helpful	helpful	not helpful	did not contact
College Placement office	☐	☐	☐	☐
Faculty Member	☐	☐	☐	☐
Private employment agency	☐	☐	☐	☐

other, please specify_____

_____

_____

_____

_____

_____

_____

16. Please rate the following by checking one of the boxes in each case.

	excellent	good	average	poor
Your college	☐	☐	☐	☐
Your training program	☐	☐	☐	☐
Instruction	☐	☐	☐	☐
Shop or lab	☐	☐	☐	☐
Equipment & apparatus	☐	☐	☐	☐

17. If you are employed, indicate the degree of job preparation that your program of study provided. (check only one)
- ☐ Strong job preparation.
- ☐ Adequate job preparation.
- ☐ Weak job preparation.

The educational community often makes a distinction between knowledge and skills training. Knowledge is traditionally thought of as the instruction of how to perform a task, whereas skills training actually allows an individual to "do" or perform the task.

Knowledge = "how to..."
Skills Training = "to do..."

This distinction is referred to in the next four questions.

18. Looking back, how satisfied are you with the knowledge offered by your program of study?
(check only one)
- ☐ I am highly satisfied.
- ☐ I am satisfied.
- ☐ I am unsatisfied.
- ☐ I am highly unsatisfied.

19. Again looking back, how satisfied are you with the skills training offered by your program of study? (check only one)
- ☐ I am highly satisfied.
- ☐ I am satisfied.
- ☐ I am unsatisfied.
- ☐ I am highly unsatisfied.

20. Knowing what you know at this time, what, if any, additional knowledge or skills training do you believe should have been provided during your training?
Specify_____

21. Was there any knowledge or skills training provided that you now believe was not necessary to learn in order to perform your present job duties?
Knowledge? Yes ☐ No ☐
Skills? Yes ☐ No ☐
Specify_____

CONTINUING EDUCATION

22. Are you currently enrolled in an educational institution?
- ☐ Yes (Go on to question number 23).
- ☐ No (Skip to number 25).

23. What is the type of institution in which you are presently enrolled?
(check only one)
- ☐ Public high school.
- ☐ Two year junior or community college.
- ☐ Technical institute.
- ☐ Four year college or university.
- ☐ Private vocational school.
- ☐ Private business school.
- ☐ Other (Specify)_____

24. How related is your present educational program to the vocational program taken at MCC? (check only one)
- ☐ Same field.
- ☐ Highly related.
- ☐ Somewhat related.
- ☐ Not related.

25. We welcome your frank comments about your college and your program in the space below. The information will be used as guidelines for program improvement only and your comments will be considered STRICTLY CONFIDENTIAL. The space may also be used to explain some of the answers given above.

_____

_____

_____

_____

_____

_____

PLEASE RETURN THIS QUESTIONNAIRE IN THE ENCLOSED ENVELOPE. THANK YOU.

The purpose of this sub-criterion is to reflect whether or not the graduates' training enables them to find jobs relating to their training. In order to do this accurately, however, some graduates must be deleted from the total number considered here. For example, if some of the graduates of a program have enrolled in another school or college, have chosen to spend time raising a family, etc., the program should not be penalized because these persons have not found employment in an area related to their training. Therefore, the graduates who meet any of the following conditions should be deleted from the analysis of this sub-criterion:

1. Graduate is unemployed (item #6) but is enrolled in school (#6 or #8), does not want full-time work (#8) or indicates 'other' reason (#8).
2. Graduate is employed (#6) and is attending school (#6) but is in a 'job not related to training' (#10).
3. Graduate is employed (#6) and is serving full time in military (#6) but is in a 'job not related to training' (#10).
4. Graduate is employed (#6) but does not indicate degree of relationship between job and training (does not answer #10).

Sub-criterion I-B is then based on all those graduates who <u>do not</u> meet any of the four above conditions. The user must then determine how many people in this group are 'Employed' (#6) <u>and</u> are in jobs that are either the 'same' as, 'highly related to' or 'somewhat related to' (#10)their training. Finally this number is then compared to the total number of people <u>in this group</u> (number remaining after deletions) to determine the percentage of graduates finding employment.

For example, of 100 graduates returning questionnaires, 20 of these meet at least one of the above four conditions and are therefore deleted from the group. Of the remaining 80 graduates, 50 are employed in a related area, 10 are employed but in an area **not** related to their training and 20 are unemployed. The percentage of graduates finding jobs (sub-criterion I-B) is therefore 50/80 = 63%.

The three remaining sub-criteria from this questionnaire are based on the responses of only those graduates who are employed in areas related to their training (i.e. the 50 graduates in the example above). These sub-criteria and the items relating to each are as follows:

	Sub-Criterion	Item
II-A	Employed graduate satisfaction with the program's job preparation	17
II-B	Employed graduate satisfaction with the knowledge offered	18
II-C	Employed graduate satisfaction with the skills training offered	19

For each of these items, the percentage of graduates responding to each alternative must be calculated. For example, if 40 graduates check 'Strong' on item #17 and 10 check 'Adequate', the respective percentages would be 40/50 = 80% and 10/50 = 20%. Again, the user must make sure to adjust the denominator, decreasing it by the number of graduates in this group who failed to answer the item (see Current Student Data section for discussion of missing values).

Finally, all results obtained in this section must be transferred to the Attainment Rating Form.

Employer Data

The Employee Performance Survey section of the Employer Questionnaire presented in Figure 8 contains the data for assessing five of the model's sub-criteria. These sub-criteria and their corresponding items are as follows:

	Sub-Criterion	Item
III-A	Employer satisfaction with graduates overall performance.	II. 1
III-B	Employer reports of spending less, equal, or more time on entry training	III. 4
III-C	Employer reports of saving, breaking even, or losing money on entry training	III. 3
IV-A	Employer willingness to hire another graduate	III. 5
IV-C	Employer ratings of program quality	III. 1

Once missing values are compensated for, the percentage of employers responding to each alternative for each item, must be calculated and these results transferred to the Attainment Rating Form.

Occupational Community Data

The final group survey instrument to be analyzed is the Occupational Community Questionnaire which is presented in Figure 9 . The five sub-criteria assessed by this and the items corresponding to each are as follows:

	Sub-Criterion	Item
I-A	The occupational community's expressed need for graduates	1
I-C	The occupational community's expressed need for the type of education offered by the program	2

ALL RESPONSES YOU GIVE WILL BE KEPT STRICTLY CONFIDENTIAL

EMPLOYER QUESTIONNAIRE

DIRECTIONS: Please complete ALL sections of this form even if the employee no longer works for your firm. When you have completed the form return it in the enclosed return-addressed, stamped envelope. Your responses will in no way affect the employee.

I. PERSONAL INFORMATION

A. Employee name_____
(Last) (First) (Middle)

B. Indicated Employer _____ City _____

II. EMPLOYMENT INFORMATION

If the employee has worked or works for your firm, please have a supervisor familiar with the work of the employee fill out this questionnaire.

Supervisor filling out form

1. Name_____
(Last) (First) (Middle)

2. Position_____

3. Do you directly supervise the employee named above? ____Yes ____No

If "no", state relationship_____

PLEASE COMPLETE REMAINING PORTIONS OF THIS QUESTIONNAIRE

Figure 8

EMPLOYEE PERFORMANCE SURVEY

DIRECTIONS: Please indicate your satisfaction with the employee as compared with other workers in the same work group who have been employed an equal amount of time. If the worker is the only person employed with your firm, compare him with others who have worked in the same position. This information will be kept strictly confidential. Please respond to all questions.

I. Total number of months employee has been employed by your firm _____.

PLEASE RESPOND TO THE FOLLOWING QUESTIONS BY PLACING AN "X" IN THE APPROPRIATE BLANK

II.

1. How satisfied are you with the employee's **overall** job performance?
   ____Highly Satisfactory ____Satisfactory ____Unsatisfactory ____Highly Unsatisfactory
2. How satisfied are you with the employee's **overall** work attitudes?
   ____Highly Satisfactory ____Satisfactory ____Unsatisfactory ____Highly Unsatisfactory

III. Based on your experiences with this employee, please answer the following questions.

1. From the knowledge and skills demonstrated by this employee, how would you rate the overall quality of his/her program training? (check one)
   ____High Quality ____Adequate Quality ____Low Quality
2. If you have noticed deficiencies in the employee's training, please specify these areas so that our program can be more beneficial to future employers. Specify Deficiencies_____
   _____
   _____
3. Realizing that every new employee needs to be introduced to your system of operations, how would you rate the expense of this entry training required by this employee? (check one)
   ____I saved money on his/her entry training
   ____I broke even on his/her entry training
   ____I lost money on his/her entry training
4. How would you rate the amount of entry training time required by this employee? (check one)
   ____Required **more** training time than did other new employees
   ____Required **equal** training time as did other new employees
   ____Required **less** training time than did other new employees
5. Considering the experience you have had with this employee, if a position were to open in your company, would you consider hiring another graduate of our program? (check one)
   ____Yes ____No
   If "No", please specify why_____
   _____

Please use the following space to provide any additional comments that you may have relating to this employee and/or his/her training program.

_____
_____
_____
_____
_____
_____
_____
_____
_____

PLEASE RETURN THIS QUESTIONNAIRE IN THE ENCLOSED ENVELOPE. THANK YOU.

OCCUPATIONAL COMMUNITY QUESTIONNAIRE

1. Based on your knowledge of the local job market, what is **your** best estimate of the existing need for persons trained in this area?

   ____High need ____Medium need ____Low need ____No need

2. Given the list of program courses and competency outcomes, what is **your** best estimate of the existing need for this type of education?

   ____High need ____Medium need ____Low need ____No need

3. Were you aware of this program of study offered at Maple Woods Community College?

   ____Yes ____No

4. Has your company ever hired a graduate of this program?

   ____Yes ____No ____Am not sure If "yes," how many graduates_____

5. Given the list of program courses and outcomes, if you were in a position to hire and your company had an opening, would you consider hiring a graduate of this program?

   ____Yes ____No If "No," why not?_____

   _____

   _____

6. Given the list of program courses and competencies, please indicate **your** rating of the quality of this program's content as it is presently being taught.

   ____High Quality ____Adequate Quality ____Low Quality

7. Are there any additional courses or competencies that you believe should be added in order to strengthen the program?

   Specify Additions _____

   _____

   _____

8. As the job market exists today, are there any courses or competencies that you believe could be deleted?

   Specify Deletions _____

   _____

   _____

9. What is the average starting salary for persons with two years of training?

   _____monthly _____hourly

10. Does your company hire persons without 2 years of training? ____Yes ____No

    If yes, what is their average starting salary? _____monthly _____hourly

Please return this page in the enclosed envelope. Thank you.

Figure 9

IV-B	Occupational community willingness to hire program graduates	5
IV-D	Occupational community ratings of program quality	6
IV-E	Occupational community awareness of the program's existence	3

As with all previous types of questionnaires, the user must compensate for missing values, calculate percentages responding to each alternative and transfer results to the Attainment Rating Form, for each of the above items.

Facilities Checklist Data

The degree of program accessibility to persons with limited physical mobility is determined by utilizing the facilities checklist. The checklist (see Figure 10) is designed to compare program physical space with the checklist items.

Prior to using the checklist the user must identify the space utilized by a particular program. Program space includes laboratory space, classroom space, hallway and classroom entrances, bathroom facilities, and auxiliary facilities, such as book stores, dining rooms and libraries. The auxiliary facilities for any given program will be a constant on the facilities checklist. However, the accessibility of any program is to be determined using both program space and auxiliary space.

After the user has identified program space, room numbers and buildings are to be listed in the designated space on the checklist. When responding to the items on the checklist, the user checks the appropriate response of yes or no as space is assessed. For example, under the checklist heading Public Walks, is the following question, "Does the primary walk extend three

PROGRAM_____

COLLEGE_____

Total # of possible yes_____

# of program yes_____

Percent accessible_____

FACILITIES CHECKLIST FOR THE HANDICAPPED

A. PARKING LOTS

1. Are parking spaces identified for handicapped students?	___ Yes	___ No
2. Is identified parking for the handicapped at least 12' wide (1½ car widths)?	___ Yes	___ No
3. Will handicapped students be able to avoid wheeling or walking behind parked cars?	___ Yes	___ No
4. Is parking for the handicapped away from through traffic?	___ Yes	___ No

Figure 10

	Building Identification Y = Yes N = No				
B. PUBLIC WALKS	_____	_____	_____	_____	_____
1. Is there at least one primary walk to program building(s) that is not less than 4 feet wide, with a maximum gradient of 5%?	_Y _N	_Y _N	_Y _N	_Y _N	_Y _N
2. Is primary walk of a continuing common surface, not interrupted by steps or abrupt changes in level?	_Y _N	_Y _N	_Y _N	_Y _N	_Y _N
3. Does the primary walk extend three feet beyond the swing of major entrance door?	_Y _N	_Y _N	_Y _N	_Y _N	_Y _N
4. Is the walk or platform area outside door entrance the same level as inside finish floor level?	_Y _N	_Y _N	_Y _N	_Y _N	_Y _N
C. RAMPS WITH GRADIENTS AND HANDRAILS					
1. Are there existing ramps for the handicapped to program or other essential building(s)? (If no, then go to section D)	_Y _N	_Y _N	_Y _N	_Y _N	_Y _N
2. Is the slope a maximum of one foot rise in twelve feet or 8.33 percent rise?	_Y _N	_Y _N	_Y _N	_Y _N	_Y _N
3. Do ramps have closed handrail on at least one side?	_Y _N	_Y _N	_Y _N	_Y _N	_Y _N
4. Are ramps at least four feet in width on exterior of building?	_Y _N	_Y _N	_Y _N	_Y _N	_Y _N
5. Does ramp have a level platform at the top that is at least five feet by five feet?	_Y _N	_Y _N	_Y _N	_Y _N	_Y _N
6. Does ramp have at least six feet of straight clearance at the bottom?	_Y _N	_Y _N	_Y _N	_Y _N	_Y _N
7. Do ramps have level platforms at thirty foot intervals for purposes of rest and safety, and level platforms wherever they turn?	_Y _N	_Y _N	_Y _N	_Y _N	_Y _N

Figure 10

D. ENTRANCE TO BUILDING(S)	_____	_____	_____	_____	_____
1. Is the primary entrance to building(s) a minimum of 36"?	_Y _N	_Y _N	_Y _N	_Y _N	_Y _N
2. Does the door readily open independently by a person in a wheelchair or on crutches (pressure should not exceed 8 lbs)?	_Y _N	_Y _N	_Y _N	_Y _N	_Y _N
3. Is the floor level for a distance of at least five feet from entrance?	_Y _N	_Y _N	_Y _N	_Y _N	_Y _N
E. ELEVATORS OR RAMP FOR MULTISTORY BUILDINGS					
1. Does building have elevators?	_Y _N	_Y _N	_Y _N	_Y _N	_Y _N
2. Are handicapped students permitted to use elevator?	_Y _N	_Y _N	_Y _N	_Y _N	_Y _N
3. Is elevator door width at least 32"?	_Y _N	_Y _N	_Y _N	_Y _N	_Y _N
4. Is elevator cab size at least 5'0 by 5'0?	_Y _N	_Y _N	_Y _N	_Y _N	_Y _N
5. Are elevator control buttons inside and call buttons outside at wheelchair level, no more than 48" from floor?	_Y _N	_Y _N	_Y _N	_Y _N	_Y _N
6. Raised, recessed, or braille numbers and letters in elevator cab?	_Y _N	_Y _N	_Y _N	_Y _N	_Y _N
7. Raised, recessed, or braille numbers and letters indicating the floor on door facing?	_Y _N	_Y _N	_Y _N	_Y _N	_Y _N
F. TOILETS					
1. Entry door to bathroom at least 32" wide?	_Y _N	_Y _N	_Y _N	_Y _N	_Y _N
2. Door to toilet stall at least 32" wide and outswinging?	_Y _N	_Y _N	_Y _N	_Y _N	_Y _N
3. Toilet seat 18" to 20" above floor?	_Y _N	_Y _N	_Y _N	_Y _N	_Y _N
4. Grab bars or handrails in stalls?	_Y _N	_Y _N	_Y _N	_Y _N	_Y _N

Figure 10

5. Sufficient clear space (at least 32") on one side of toilet for wheelchair?	_Y_ N	_Y_ N	_Y_ N	_Y_ N	_Y_ N
6. Toilet stall with door at least 56" deep?	_Y _N	_Y _N	_Y _N	_Y _N	_Y _N
7. Clear space below a sink for person in wheelchair (29½" above floor level)?	_Y _N	_Y _N	_Y _N	_Y _N	_Y _N
8. Is the soap dispenser accessible from a wheelchair?	_Y _N	_Y _N	_Y _N	_Y _N	_Y _N
9. Are towels, or is drying machine accessible from a wheelchair?	_Y _N	_Y _N	_Y _N	_Y _N	_Y _N
10. Is at least one mirror accessible from a wheelchair?	_Y _N	_Y _N	_Y _N	_Y _N	_Y _N
11. Are sink faucets accessible from a wheelchair?	_Y _N	_Y _N	_Y _N	_Y _N	_Y _N
12. Do the faucets have single lever controls?	_Y _N	_Y _N	_Y _N	_Y _N	_Y _N
G. INTERIOR					
1. Are fire alarms reachable from a wheelchair (No more than 48" from floor)?	_Y _N	_Y _N	_Y _N	_Y _N	_Y _N
2. Are fire alarms equipped with both audible and visible signals?	_Y _N	_Y _N	_Y _N	_Y _N	_Y _N
3. Are doors equipped with knurled or textured handles to warn the blind of danger areas?	_Y _N	_Y _N	_Y _N	_Y _N	_Y _N
4. Are water fountains no more than 36" above floor?	_Y _N	_Y _N	_Y _N	_Y _N	_Y _N
5. Is there nonslip surface on ramps and non-level floor areas?	_Y _N	_Y _N	_Y _N	_Y _N	_Y _N
H. ACCESSIBILITY FEATURES FOR PROGRAM CLASSROOM OR LABORATORY BUILDINGS					
1. Is entrance to classroom accessible to the handicapped?	_Y _N	_Y _N	_Y _N	_Y _N	_Y _N
2. Is there level space for wheelchairs in optimum viewing area of class?	_Y _N	_Y _N	_Y _N	_Y _N	_Y _N

Figure 10

3. Are there movable desks and chairs in classrooms? __Y __N __Y __N __Y __N __Y __N __Y __N

4. Are there movable work stations (e.g. laboratory tables), or if there are fixed work stations, a minimum clear width of 3 feet between aisles? __Y __N __Y __N __Y __N __Y __N __Y __N

Figure 10

I. ACCESSIBILITY FEATURES FOR LIBRARIES

1. Is entrance to the library accessible to the handicapped? ___ Yes ___ No
2. Are aisles between stacks minimum width 4'? ___ Yes ___ No
3. Are tables or study carrels with a clear minimum of 30" from floor to underside of work area? ___ Yes ___ No
4. Are all card catalogs at a level usable by person in wheelchair? ___ Yes ___ No
5. Are carrels with talking book machines, tape recorders, accessible to persons in wheelchairs? ___ Yes ___ No

J. ACCESSIBILITY FEATURES FOR DINING AREAS

1. Are tables with a clear minimum of 30" from floor to underside of table? ___ Yes ___ No
2. Width between tables minimum of 5' 6" or tables movable? ___ Yes ___ No
3. Are tray slide rails no higher than 3' 4"? ___ Yes ___ No
4. Are aisles in cafeteria line a minimum of 36" wide? ___ Yes ___ No
5. Is entrance to dining area accessible to handicapped? ___ Yes ___ No
6. Is the silverware 40" or less from the floor (reachable from wheelchair)? ___ Yes ___ No
7. Are food display cases 40" or less from the floor? ___ Yes ___ No
8. Are drink dispensers 40" or less from the floor? ___ Yes ___ No

K. ACCESSIBILITY FEATURES FOR BOOKSTORES

1. Is entrance to bookstore accessible to handicapped? ___ Yes ___ No
2. Is space between aisles at least 4' wide? ___ Yes ___ No
3. Are books and other items accessible to person in a wheelchair? ___ Yes ___ No

Figure 10

feet beyond the swing of major entrance door"? The user must measure the primary walk extension, and place the response in the appropriate column under the specific building in question. If there is more than one building used by a particular program, then the user must respond to the same question for each building.

In order to compute a program's accessibility, the total number of possible positive responses are counted on the checklist, and is compared to the total number of actual positive responses, and the percent of program accessibility is obtained. For example, if there were 54 possible yes responses, and the program actually has 40 yes responses (14 responses were no), the program would be 74 percent accessible.

$$\text{Program accessibility} = \frac{\text{actual yes responses}}{\text{possible yes responses}}$$

Program Data

Most of the data regarding the Handicapped and Disadvantaged sub-criteria and the Sex Fairness sub-criterion are contained on the Program Questionnaire presented in Figure 11 . These five sub-criteria and their corresponding items are presented below.

Sub-Criterion		Item
VI-B	Availability of personal support services to the handicapped	3
VI-C	Availability of personal support services to the disadvantaged	7
VI-E	Program's communication of willingness to enroll the handicapped	1
VI-F	Program's communication of willingness to enroll the disadvantaged	6

PROGRAM QUESTIONNAIRE

1. Is your program of study involved in any special recruitment efforts to ensure the participation of handicapped students?
   ____Yes ____No

   If yes, please indicate all of the following that describe those efforts.
   ____Contacted service agencies for the handicapped
   ____Brochures and other publications on program depict handicapped students
   ____Communicated to high school counselors program's willingness to enroll handicapped students
   ____Communicated to counselors in your college, program's willingness to enroll handicapped students
   ____Other, please specify _____

2. Are handicapped students currently enrolled in your program?
   ____Yes ____No

   If yes, please indicate the type(s) of handicapping condition(s) and the number of students with each enrolled.

	Number
____Physically handicapped	____
____Visually handicapped	____
____Blind	____
____Speech impaired	____
____Deaf	____
____Hard of hearing	____

3. Are there currently personal support services available for the handicapped student?
   ____Yes ____No

   If yes, please indicate all of the following that describe those services.
   ____Counseling services are available
   ____If program currently enrolls physically handicapped students, classes are scheduled in spaces that are convenient for them
   ____Financial support is available
   ____Special provisions are made throughout the program to accommodate any problems students might have related to, or because of their handicaps
   ____Other, please specify _____

4. Are there students with certain types of handicaps who are not allowed to enroll in your program?
   ____Yes ____No

   If yes, please specify those types of handicaps which prevent enrollment in your program.

   _____

   _____

   Please explain the rationale for not allowing these students to enroll.

   _____

   _____

5. Are there students with certain types of handicaps who are permitted to enroll in your program if they choose, but are discouraged from doing so?
   ____Yes ____No

   If yes, please specify those types of students who are discouraged from entering your program.

   _____

   _____

   _____

   _____

   _____

Figure 11

Please explain the rationale for discouraging the enrollment of these students.

_____

_____

6. Is your program of study involved in any special recruitment efforts to ensure the participation of disadvantaged students?
   ____Yes ____No

   If yes, please indicate all of the following that describe those efforts.
   ____Contacted service agencies for the disadvantaged
   ____Communicated to high school counselors program's willingness to enroll disadvantaged students
   ____Communicated to counselors in your college, program's willingness to enroll disadvantaged students
   ____Other, please specify_____

7. Are there currently personal support services available for the disadvantaged student?
   ____Yes ____ No

   If yes, please indicate all of the following that describe those services.
   ____Counseling services are available
   ____Academic support services in the form of tutoring, skills development labs, remedial course work, etc. are available
   ____Financial support is available
   ____Special provisions are made throughout the program to accommodate any problems students might have related to, or because of their disadvantages
   ____Other, please specify _____

   _____

   _____

   _____

   _____

8. Is your program of study involved in any special recruitment efforts to ensure the participation of both male and female students?
   ____Yes ____No

9. If yes to item 8, please indicate all of the following that describe those efforts.
   ____All publications and correspondence about program depict equitable treatment of each sex.
   ____All course offerings are open to both male and female students on an equal basis.
   ____Students of each sex are encouraged to enroll in program of study, with special encouragement extended to students of one sex who have traditionally not enrolled in program.
   ____Other, please specify

10. Does your department only encourage students of one sex to enroll in your program of study?
    ____Yes ____No

11. If yes to item 10, please specify why students of only one sex are encouraged to enroll in your program of study.

    _____

    _____

    _____

    _____

VII-A Evidence of program's encouragement of both sexes to enroll in program 9

As there is only one questionnaire (responded to by the program chairperson) for each program evaluated, no missing values must be dealt with. To analyze each of these items, the user must simply count the number of alternatives that are checked for each. If the 'other' category is indicated and more than one additional service or effort is indicated, each additional one of these will add a point to that item's total. The totals for each item should also be transferred to the Attainment Rating Form.

Labor Market Projections

The user must establish criteria for determining whether or not an occupational program is to fit one of the following categories, High, Medium, or Low labor market need. Since many schools do not have the expertise of a professional on staff who is able to project labor market demands, then community resources must be utilized. One resource that appears to be available to most institutions located in urban settings is the publication on labor trends and projections published by their State Division of Employment Security for a particular Standard Metropolitan Statistical Area (SMSA). After reviewing this publication, and identifying those occupations for which labor market data is needed, cut-offs can be established based on the average annual number of job openings. The user may, for example, use the following cut-offs for the average annual number of job openings: 0-50 = Low need; 51-100 = medium need; and 100 and above = High need.

Attainment Rating Form

Once data have been collected and responses summarized, the user must compare these to proficiency levels which were established for each sub-criterion to be used in categorizing a program's sub-criterion attainment rating as STRONG, ADEQUATE, or WEAK. Attainment ratings and proficiency levels are presented in Figure 12. The following discussion indicates how this form is to be used to calculate the attainment ratings for each sub-criterion.

Two types of sub-criteria attainment ratings are included in the evaluation model. With the first type, three categories of responses are available. For example, employed graduates may rate the program's job preparation as either Strong, Adequate, or Weak. A program's attainment rating on this type of sub-criterion is determined by the percentage of graduates responding at the proficiency level set for each of these categories.

Each category has a numerical value associated with it called the 'response level' such that Strong, Adequate, and Weak have response levels of 3, 2, and 1, respectively. To calculate the attainment rating for a sub-criterion, the percentage of responses in each category is multiplied by that category's respective response level. These three products are then summed to yield the attainment rating for that sub-criterion. An example of this procedure is given below.

RESPONSE LEVEL				ATTAINMENT RATING
3	X	75	Strong =	225
2	X	20	Adequate =	40
1	X	5	Weak =	5
0	X		No Data =	
			TOTAL =	270

The attainment rating for this sub-criterion is 270 points.

PROGRAM TITLE: _____

	STRONG	ADEQUATE	WEAK	RESPONSE LEVEL	DATA	ATTAINMENT RATING
I.	**Local Job Market Needs**					
A.	The majority of the occupational community indicate a High Need for workers in program's area of training.	The majority indicate a Medium Need for workers	The majority indicate a Low or No Need for workers.	3 X ____ 2 X ____ 1 X ____ 0 X ____	High Need Medium Need Low Need No Data	= _____ = _____ = _____ = _____
					TOTAL =	_____
B.	At least 90% of the graduates are finding program related employment.	At least 75% are finding employment.	Less than 75% are finding employment.	____	% Employed	_____
C.	The majority of the occupational community indicate a High Need for local vocational training in program's area of training.	The majority indicate a Medium Need for vocational training.	The majority indicate a Low or No Need for vocational training.	3 X ____ 2 X ____ 1 X ____ 0 X ____	High Need Medium Need Low Need No Data	= _____ = _____ = _____ = _____
					TOTAL =	_____
D.	K.C. Manpower report cites a High employment need for program graduates.	Report cites a Moderate employment need.	Report cites a Low employment need.	3 X ____ 2 X ____ 1 X ____ 0 X ____	Very High/High Need Medium Need Low Need No Data	= _____ = _____ = _____ = _____
					TOTAL =	_____
II.	**Past and Present Student Needs**					
A.	The majority of employed graduates rate the program's job preparation as Strong.	The majority rate the preparation as Adequate.	The majority rate the preparation as Weak.	3 X ____ 2 X ____ 1 X ____ 0 X ____	Strong Adequate Weak No Data	= _____ = _____ = _____ = _____
					TOTAL =	_____

Figure 12: Attainment Rating Form

	STRONG	ADEQUATE	WEAK	RESPONSE LEVEL		DATA	ATTAINMENT RATING
B.	The majority of employed graduates are Highly Satisfied with the knowledge offered by the program.	The majority are Satisfied with the knowledge.	The majority are Unsatisfied or Highly Unsatisfied.	3	X	____Highly Satisfied	= _____
				2	X	____Satisfied	= _____
				1	X	____Unsatisfied/ Highly Unsatisfied	= _____
				0	X	____No Data	= _____
							TOTAL = _____
C.	The majority of employed graduates are Highly Satisfied with the skills offered by the program.	The majority are Satisfied with the skills training.	The majority are Unsatisfied or Highly Unsatisfied with the skills training.	3	X	____Highly Satisfied	= _____
				2	X	____Satisfied	= _____
				1	X	____Unsatisfied/ Highly Unsatisfied	= _____
				0	X	____No Data	= _____
							TOTAL = _____
D.	The majority of employed graduates rate the program as Excellent or Good.	The majority rate the program as Average.	The majority of employed graduates rate the program as Poor.	3	X	____Excellent/Good	= _____
				2	X	____Average	= _____
				1	X	____Poor	= _____
				0	X	____No Data	= _____
							TOTAL = _____
E.	The majority of current students are Highly Satisfied with the skills offered by the program.	The majority are Satisfied with the skills offered.	The majority are Unsatisfied or Highly Unsatisfied with the skills offered.	3	X	____Highly Satisfied	= _____
				2	X	____Satisfied	= _____
				1	X	____Unsatisfied/ Highly Unsatisfied	= _____
				0	X	____No Data	= _____
							TOTAL = _____
F.	The majority of current students are Highly Satisfied with the knowledge offered by the program.	The majority are Satisfied with the knowledge offered.	The majority of current students are Unsatisfied or Highly Unsatisfied with the knowledge offered.	3	X	____Highly Satisfied	= _____
				2	X	____Satisfied	= _____
				1	X	____Unsatisfied/ Highly Unsatisfied	= _____
				0	X	____No Data	= _____
							TOTAL = _____

	STRONG	ADEQUATE	WEAK	RESPONSE LEVEL	DATA	ATTAINMENT RATING
C.	The majority of current students rate the program as Excellent or Good.	The majority rate the program as Average.	The majority rate the program as Poor.	3 X ____ 2 X ____ 1 X ____ 0 X ____	Excellent/Good Average Poor No Data	= ____ = ____ = ____ = ____
					TOTAL	= ____
III.	Graduate Job Performance					
A.	The majority of employers are Highly Satisfied with their employee-graduate's overall job performance.	The majority are Satisfied with their performance.	The majority are Unsatisfied or Highly Unsatisfied with their performance.	3 X ____ 2 X ____ 1 X ____ 0 X ____	Highly Satisfied Satisfied Unsatisfied/ Highly Unsatisfied No Data	= ____ = ____ = ____ = ____
					TOTAL	= ____
B.	The majority of employers spent Less than the usual amount of time entry training their employee-graduates.	The majority spent about an Equal amount of time.	The majority spent More than average amount of time.	3 X ____ 2 X ____ 1 X ____ 0 X ____	Spent Less Time Spent Equal Time Spent More Time No Data	= ____ = ____ = ____ = ____
					TOTAL	= ____
C.	The majority of employers Saved money on the entry training of their employee-graduates.	The majority Broke Even on their entry training.	The majority Lost money on their entry training.	3 X ____ 2 X ____ 1 X ____ 0 X ____	Saved Money Broke Even Lost Money No Data	= ____ = ____ = ____ = ____
					TOTAL	= ____
IV.	Occupational Community Support					
A.	At least 90% of the employers are willing to hire another program graduate.	At least 75% are willing to hire another graduate.	Less than 75% are willing to hire another graduate.		____% Willing	____

	STRONG	ADEQUATE	WEAK	RESPONSE LEVEL	DATA	ATTAINMENT RATING
B.	At least 90% of the occupational community have or are willing to hire program graduates.	At least 75% have or are willing to hire program graduates.	Less than 75% have or are willing to hire program graduates.		____% Willing	_____
C.	The majority of the employers rate the program as being of High Quality.	The majority rate the program as being of Adequate Quality.	The majority rate the program as being of Low Quality.	3 X 2 X 1 X 0 X	____High Quality ____Adequate Quality ____Low Quality ____No Data	= _____ = _____ = _____ = _____ TOTAL = _____
D.	The majority of the occupational community rate the program's overall training as being of High Quality.	The majority rate the program as being of Adequate Quality.	The majority rate the program as being of Low Quality.	3 X 2 X 1 X 0 X	____High Quality ____Adequate Quality ____Low Quality ____No Data	= _____ = _____ = _____ = _____ TOTAL = _____
E.	At least 75% of the occupational community are aware of the vocational program.	At lease 50% are aware of the program.	Less than 50% are aware of the program.		____% Aware	_____

V. Program's Cost-Effectiveness

A. & B.	Program benefits are rated Strong and program costs per credit hr./costs per contact hr. rank within the Middle or Low 1/3 of all vocational programs.	Programs benefits are rated Strong and program costs rank in the high 1/3 or benefits are rated Adequate and costs rank in the Middle 1/3 or Low 1/3; or program benefits are rated Weak and costs rank in the Low 1/3.	Program benefits are rated* Adequate and costs rank in the High 1/3 or benefits are rated Weak and costs rank in the High 1/3 or Middle 1/3.	

*Please see Cost-Benefit Evaluation form, Page

	STRONG	ADEQUATE	WEAK	DATA	ATTAINMENT RATING
VI.	Success in Meeting the Needs of the Handicapped and Disadvantaged				
A.	At least 90% of classroom and laboratory facilities are equipped to handle the physically handicapped.	At least 75% are equipped.	Less than 75% are equipped.	_____ % Equipped	_____
B.	At least Three personal support services exist within the program for the handicapped.	At least Two support services exist.	One or No support services are available.	_____ # Services	_____
C.	At least Three personal support services exist within the program for the disadvantaged.	At least Two support services exist.	One or No support services are available.	_____ # Services	_____
D.	At least 90% of the disadvnataged seeking academic assistance were able to obtain it.	At least 75% were able to obtain academic assistance.	Less than 75% were able to obtain academic assistance.	_____ % Assisted	_____
E.	At least Three recruitment efforts are being made by the program to insure the participation of the handicapped.	At least Two recruitment efforts are being made.	One or No recruitment efforts are being made.	_____ # Efforts	_____
F.	At least Three recruitment efforts are being made by the program to insure the participation of the disadvantaged.	At least Two recruitment efforts are being made.	One or No recruitment efforts are being made.	_____ # Efforts	_____

	STRONG	ADEQUATE	WEAK	DATA	ATTAINMENT RATING
VII. **Success in Demonstrating Sex Fairness**					
A.	At least Two recruitment efforts are being made by the program to insure the participation of both female and male students.	At least One recruitment effort is being made.	No recruitment efforts are being made.	_____ # Efforts	_____
B.	Less than 10% of the students of a program's nontraditional sex drop from the program because of sex bias.	Less than 20% of the students drop because of sex bias.	More than 20% of the students drop because of sex bias.	_____ % Dropped	_____

The response level of 0 is used only when no data is available for a sub-criterion. For example, if no persons have graduated from a program, all sub-criteria based on graduate responses would receive attainment ratings of zero. This zero response level is not to be used, however, when the lack of available data is due to the inability of the evaluation staff to obtain the data. This would be the case if a program had graduates, but the staff was unable to contact any of them. In this situation, the sub-criteria based on graduate responses would be deleted from the analyses rather than receiving ratings of zero. Weights on each of the sub-criteria would then be recalculated (based on the original frequency matrix for all remaining sub-criteria). These procedures for calculating attainment ratings must be carried out for all sub-criteria for which three response categories are available.

A second type of sub-criterion attainment rating is included in the model. With this second type, specific proficiency level cut-offs are identified which determine whether a program is Strong, Adequate, or Weak on each sub-criterion. For example, the following proficiency level cut-offs are identified for sub-criterion I-B:

STRONG	ADEQUATE	WEAK
At least 90% of the graduates are finding program related employment.	At least 75% are finding employment.	Less than 75% are finding employment.

If the percentage of graduates employed falls in the STRONG range, the program would receive an attainment rating of 300. Percentages of employed graduates falling within the ADEQUATE and WEAK ranges would receive attainment ratings of 200 and 100, respectively. Again, if there were no graduates from the program, none could be employed and the program would therefore receive attainment ratings of zero on sub-criteria that utilize graduate and employer responses.

Cost-Effectiveness Analysis

A. Cost Analyses

In order to compare costs of different programs, two Instructional Cost Index (ICI) values, one for credit hours and one for contact hours, must be calculated. The Program Cost Information (as described earlier) serves as the data source for these calculations. The following formulas are used to compute the ICI values:

$$\text{(a) ICI (credit)} = \frac{\text{RFE(PIE)} + \text{PSE} + \text{CE} + \text{DE}}{\text{Program Credit Hours Generated}} \qquad \text{(b) ICI (contact hrs.)} = \frac{\text{RFE(PIE)} + \text{PSE} + \text{CE} + \text{DE}}{\text{Program Contact Hours Generated}}$$

Where:

RFE = Relative Faculty Effort = .90
PIE = Program Instructional Expense
(Faculty Salaries + Benefits)
PSE = Program Support Expense
(Supplies & Expenses + Equipment & Furniture + Misc.)
CE = College Expense

$$\frac{\text{Administration Expense}}{\text{Total College FTEs}} + \frac{\text{Operations \& Maintenance Expense}}{\text{Total College FTEs}} \times \frac{\text{Programs}}{\text{FTEs}}$$

DE District Expense

$$\frac{\text{Administration Expense}}{\text{Total District FTEs}} + \frac{\text{Operations \& Maintenance Expense}}{\text{Total District FTEs}} \times \frac{\text{Programs}}{\text{FTEs}}$$

In those institutions where there is no district structure, the District Expense (DE) may simply be omitted from the formulas. The Program Cost Form presented in Figure 13, provides a convenient worksheet for organizing these data and deriving the two necessary ICI values.

Once these ICI values have been computed for each vocational program within an institution, they should be rank-ordered from highest to lowest, providing a listing of ranked credit hour ICIs and a listing of ranked contact hours ICIs. By dividing each ranked list into thirds, the user determines into which one-third portion of the cost distribution, High,

College_____ Program_____ ICI Credit_____ ICI Contact_____

RFE = .90 = Relative Faculty Effort

CAOME = __,___,___,___ = College Administration, Operations & Maintenance Expense
CFTE = __,___,___.___ = College FTE

DAOME = __,___,___.___ = District Administration, Operations & Maintenance Expense
DFTE = __,___,___.___ = District FTE

PFTE = __,___,___.___ = Program FTE

CE = __,___,___.___ = College Expense
DE = __,___,___.___ = District Expense

PIE = __,___,___.___ = Program Instructional Expense

PIE(RFT) = __,___,___.___
PSE = __,___,___.___ = Program Support Expense
CE + DE = __,___,___.___

PCR = __,___,___.___ = Program Credit Hours
PCO = __,___,___.___ = Program Contact Hours

ICICR = Instructional Cost Index, Credit
ICICO = Instructional Cost Index, Contact

$$CE = ___,___,___.___ = \frac{CAOME \times PFTE}{CFTE} \qquad \frac{CAOME}{CFTE} = ___,___,___.____$$

$$DE = ___,___,___.___ = \frac{DAOME \times PFTE}{DFTE} \qquad \frac{DAOME}{DFTE} = ___,___,___.____$$

$$ICICR = \frac{RFE(PIE) + PSE + CE + DE}{PCR} \qquad ICICO = \frac{RFE(PIE) + PSE + CE + DE}{PCO}$$

ICICR = _____ = _____

ICICO = _____ = _____

Figure 13 Program Cost Form

Middle, or Low, a program's costs fall. The Cost-Effectiveness Rating Form is presented in Figure 14. ICI value, rank, and third into which the program falls for both credit and contact hours should be transferred to these forms under the COST section.

B. Benefit Analysis

As can be seen on the Cost-Effectiveness Rating Form (Figure 14) each benefit has an associated sub-criterion number and letter, which corresponds to those on the Attainment Rating Form (refer back to Figure 12). In order to determine benefit ratings for each program, the user must first transfer the appropriate sub-criterion attainment ratings from the Attainment Rating Form.

These attainment ratings for each of the 9 benefits are summed, then divided by 9 to determine the average attainment rating. This average is then converted to a Benefit Rating of STRONG (250-300 pts.), ADEQUATE (150-249 pts.), or WEAK (0-149 pts.) as shown on the form.

C. Final Cost-Effectiveness Rating Computation

By completing the above form the user has provided for a vocational program (a) a Benefit Score and Rating of STRONG, ADEQUATE or WEAK, (b) an Instructional Cost Index per credit hour (or FTE) and its divisional one-third ranking across all programs, and (c) an Instructional Cost Index per contact hour and its divisional one-third ranking. These measures are necessary for the following assessment of a program's cost-effectiveness.

To provide a program with a Cost-Effectiveness Rating of STRONG, ADEQUATE or WEAK, the following combination of costs and benefits were judged

BENEFITS

Student Benefits:	Sub-Criterion	Attainment Rating
1. Students are satisfied with the quality of their training program.	2G	_____
2. Graduates are satisfied with the quality of their training program.	2D	_____
3. Graduates find program related employment.	1B	_____
4. Graduates view their job preparation as adequate or strong.	2B	_____
Program Benefits:		
5. The occupational community is aware of the program.	4E	_____
6. The program's knowledge and skills training is rated competent by the occupational community.	4D	_____
Industry Benefits:		
7. Employers of program graduates are satisfied with their performance.	3A	_____
8. Employers of program graduates break even or save money on the entry training of their employee.	3D	_____
9. Employers of program graduates break even or save time in the entry training of their employee.	3C	_____
		_____

Benefit Rating:
250 - 300 pts. = STRONG _____
150 - 249 pts. = ADEQUATE _____
0 - 149 pts. = WEAK _____

Total Points _____

Average Points (Tot. Pts./9) _____

COSTS	ICI	RANK	THIRD
Program Cost per Credit Hour (ICI)	$____	____	Low___Middle___High____
Program Cost per Contact Hour (ICI)	$____	____	Low___Middle___High____

Credit COST/BENEFIT RATING _____

Contact COST/BENEFIT RATING _____

Figure 14 Cost-Effectiveness Rating Form

appropriate by the MCC administration and evaluation staff. (See Cost-Benefit Ratings Standards, Figure 15)

STRONG COST-EFFECTIVENESS: Program benefits are rated STRONG and program costs per credit hours/cost per contact hours rank within the Middle or Low 1/3 of all vocational programs.

STRONG-ADEQUATE COST-EFFECTIVENESS: Program benefits are rated STRONG, and program costs rank in the high 1/3 OR benefits are rated ADEQUATE and costs rank in the Low 1/3.

ADEQUATE COST-EFFECTIVENESS: Program benefits are rated ADEQUATE and costs rank in the Middle 1/3 OR benefits are rated WEAK and costs rank in the Low 1/3.

ADEQUATE-WEAK COST-EFFECTIVENESS: Program benefits are rated as ADEQUATE and costs rank in the High 1/3.

WEAK COST-EFFECTIVENESS: Program benefits are rated as WEAK and costs rank in the High or Middle 1/3.

Subsequently, a program's cost-effectiveness rating is dependent on the relationship between its costs and benefits. While more sophisticated cost-effectiveness procedures are available, it is believed that the described directions provide a clear and simple view of a program's effectiveness in terms of money spent and the benefits reaped by various audiences.

Benefit Rating	Cost-Ranking	Cost-Effectiveness	Quality Points
STRONG	Middle 1/3	STRONG	300 pts.
STRONG	Low 1/3		
STRONG	High	STRONG-ADEQUATE	250 pts.
ADEQUATE	Low 1/3		
ADEQUATE	Middle 1/3	ADEQUATE	200 pts.
WEAK	Low 1/3		
ADEQUATE	High 1/3	ADEQUATE-WEAK	150 pts.
ADEQUATE	High 1/3		
WEAK	Middle 1/3	WEAK	100 pts.

Figure 15: Cost-Benefit Rating Standards

EVALUATION SCORE SHEET

Sub-Criterion Scores - Unweighted

Once the attainment ratings (including the two cost-effectiveness attainment ratings) have been determined for all sub-criteria of both types, these ratings must be transferred to the Evaluation Score Sheet presented in Figure 16. Each of these attainment ratings represents a sub-criterion score (unweighted) and a program's status on each sub-criterion can be interpreted from these as follows:

STRONG:	250-300 pts.
STRONG-ADEQUATE:	240-249 pts.
ADEQUATE:	160-239 pts.
ADEQUATE-WEAK:	150-159 pts.
WEAK:	0-149 pts.

For example, a program would be classified as ADEQUATE with respect to its current students' program quality ratings (II-G) if the sub-criterion score here was 227. Examination of a program's status on each individual sub-criterion should help program personnel in identifying, more specifically, which areas need improvement.

Sub-Criterion Scores - Weighted

In order to obtain the overall scores for each of the model's seven criteria, the sub-criterion scores must be weighted according to the importance assigned to each by the Secondary Advisory Committee. The weights yielded by the paired comparison procedures performed on each set of sub-criteria reflect the importance of each sub-criterion. Weighted sub-criterion scores must be obtained by multiplying each sub-criterion score (unweighted) by its corresponding paired comparison weight. These values should be recorded in the second column of blanks on the Evaluation Score Sheet. Because

Sub-Criterion | Sub-Criterion Wt. | Attainment Rating

Criterion I. Local Job Market Needs

A .32 X ____ = ____ The Occupational community's expressed need for graduates
B .29 X ____ = ____ Program graduates' need for employment (% finding jobs)
C .28 X ____ = ____ The occupational community's expressed need for the type of education offered by the program
D .11 X ____ = ____ Projected employment needs reported by the K.C. Manpower Report

Total ____ X .24 = ____ Weighted Criterion 1 Score

Criterion II. Past and Present Student Needs

A .21 X ____ = ____ Employed graduate satisfaction with the program's job preparation
B .19 X ____ = ____ Employed graduate satisfaction with the knowledge offered
C .17 X ____ = ____ Employed graduate satisfaction with the skills training offered
D .16 X ____ = ____ Employed graduate ratings of the program's quality
E .10 X ____ = ____ Current student satisfaction with the skills training offered
F .09 X ____ = ____ Current student satisfaction with the knowledge offered
G .08 X ____ = ____ Current student ratings of the program's quality

Total ____ X .23 = ____ Weighted Criterion 2 Score

Criterion III. Graduate Job Performance

A .60 X ____ = ____ Employer satisfaction with the graduate's overall performance
B .29 X ____ = ____ Employer reports of spending less, equal or more time on entry training
C .11 X ____ = ____ Employer reports of saving, breaking even, or losing money on entry training

Total ____ X .23 = ____ Weighted Criterion 3 Score

Criterion IV. Occupational Community Support

A .28 X ____ = ____ Employer (of graduates) willingness to hire another graduate
B .26 X ____ = ____ Occupational Community willingness to hire program graduates
C .22 X ____ = ____ Employer (of graduates) ratings of program quality
D .14 X ____ = ____ Occupational Community ratings of program quality
E .10 X ____ = ____ Occupational Community awareness of the program's existence

Total ____ X .10 = ____ Weighted Criterion 4 Score

Criterion V. Cost Effectiveness

A .54 X ____ = ____ Cost per Credit Hours
B .46 X ____ = ____ Cost per Contact Hours

Total ____ X .08 = ____ Weighted Criterion 5 Score

Criterion VI. Success in Reaching Handicapped & Disadvantaged

A .25 X ____ = ____ Evidence that program facilities are equipped to handle the handicapped
B .20 X ____ = ____ Availability of personal support services to the handicapped
C .18 X ____ = ____ Availability of personal support services to the disadvantaged
D .15 X ____ = ____ Availability of academic assistance to disadvantaged students
E .11 X ____ = ____ Program's communication of willingness to enroll the handicapped
F .11 X ____ = ____ Program's communication of willingness to enroll the disadvantaged

Total ____ X .08 = ____ Weighted Criterion 6 Score

Criterion VII. Success in Demonstrating Sex Fairness

A .55 X ____ = ____ Evidence of program's encouragement of both sexes to enroll in program
B .45 X ____ = ____ Evidence that students do not drop from program because of sex bias

Total ____ X .04 = ____ Weighted Criterion 7 Score

Composite Score = ____ (Sum of all seven weighted criterion scores)

Figure 16: Evaluation Score Sheet

these weighted sub-criterion scores are obtained solely for the purpose of creating criterion scores, no direct interpretation of them is necessary.

Criterion Scores - Unweighted

The user must now sum each set of weighted sub-criterion scores and record these sums on the Evaluation Score Sheet. These sums reflect unweighted criterion scores which may be interpreted to represent a program's status on each of the model's criteria. As with the unweighted sub-criterion scores, the following range interpretations are applicable:

STRONG:	250-300 pts.
STRONG-ADEQUATE:	240-249 pts.
ADEQUATE:	160-239 pts.
ADEQUATE WEAK:	150-159 pts.
WEAK:	0-149 pts.

For example, a program would be rated as STRONG in meeting the needs of the local job market (Criterion I) if its unweighted criterion score here was 261.

Criterion Scores - Weighted

As was done in using sub-criterion scores to obtain the criterion scores, these criterion scores must then be weighted according to importance to yield an overall rating or composite score for a program. The importance of each criterion is reflected by its corresponding paired comparison weight. These weights are those which were generated by the Primary Advisory Committee.

To obtain these weighted criterion scores, the user must multiply each unweighted criterion score by the appropriate criterion weight. Again, the user should not attempt to interpret these weighted criterion scores; they are obtained solely for the purpose of yielding a composite score.

Composite Score

Finally, a program's composite score may be calculated by summing its weighted criterion scores. This score may then be interpreted as reflecting the merit of a program with respect to all criteria observed. The same standards are used in interpreting these composite scores as were used with the sub-criterion and criterion scores (both unweighted). These composite scores should be useful in making comparisons among programs based on overall merit. However, it is strongly recommended that the user always report programs' criterion scores (unweighted) in addition to their composite scores as a much better picture of their strengths and weaknesses are conveyed by the former.

PROGRAM AND COMPOSITE EVALUATION PROFILES

The Program and Composite Evaluation Profiles used in the MCC project for graphing vocational programs' criterion and composite scores are presented in Figures 17 and 18, respectively. The program profile which contains a program's criterion scores and composite score should be prepared for each program evaluated. The Composite Profile contains only the composite score for each program evaluated. All the information contained on these profiles is already available from the Evaluation Score Sheet. However, the MCC staff found that its display in graphic form made it much more readily understood. The user should consider the use of these forms for presenting the final results to decision makers and others interested in the evaluation results.

PROGRAM TITLE: MIDM — PENN VALLEY

Figure 17: EVALUATION PROFILE

COMPOSITE PROFILE

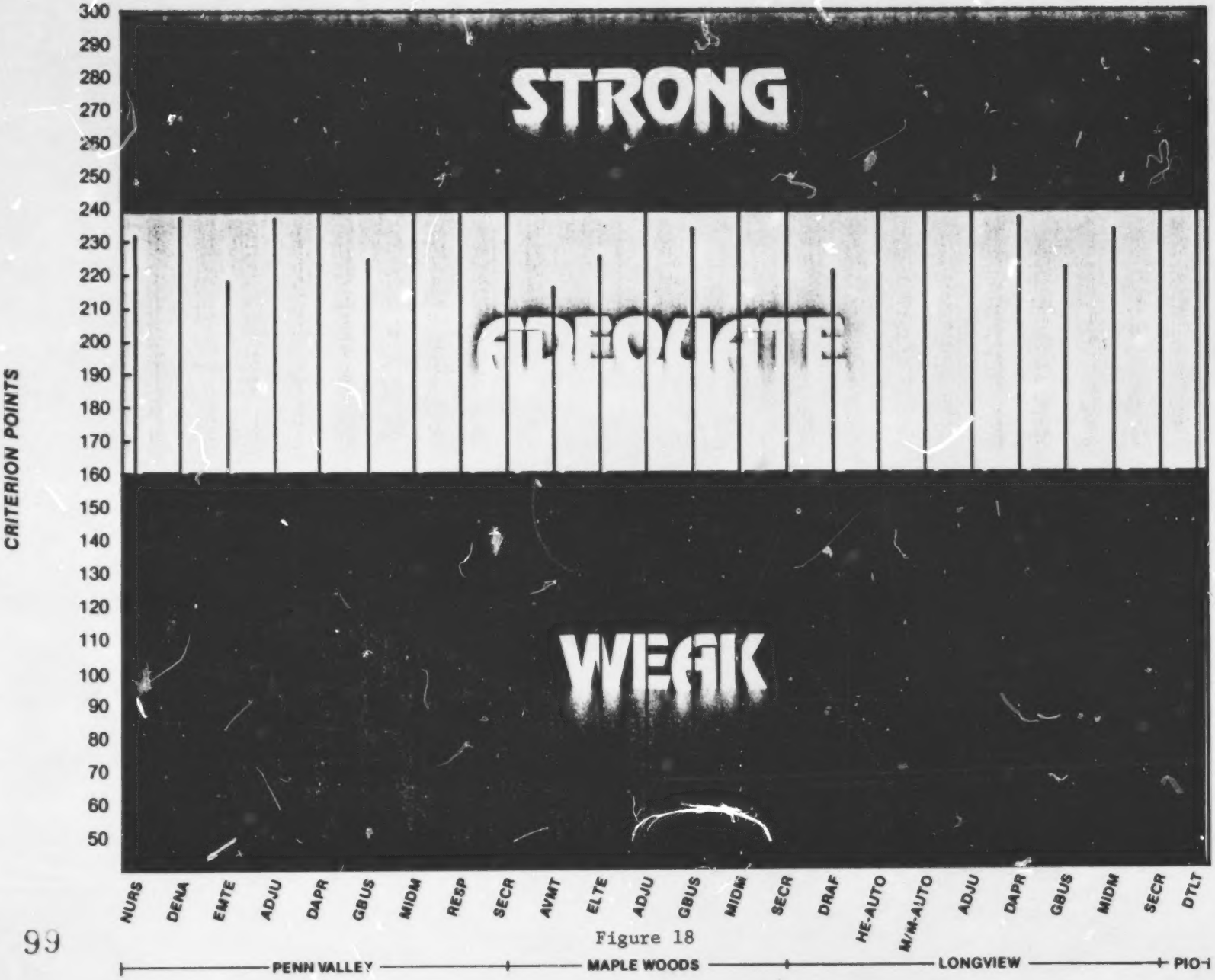

Figure 18

RECOMMENDATIONS FOR MODEL USE

The user of the vocational curriculum evaluation model must develop a time frame for model implementation. As previously noted, the procedures outlined in this manual are not to be viewed in a step-by-step time sequence. However, project staff at MCC have found that there are several tasks that must be completed early during the evaluation process in order to ensure that the evaluation will be completed within a reasonable time. Project staff at MCC were able to complete the evaluation of 24 vocational programs within a 12 month period. Approximately one month was spent on the revision of the field-tested data collection instruments, and communicating with program faculty and administrators at the four campus sites.

Tasks

The following tasks should be given priority during the process of evaluation. The procedures for accomplishing these tasks have been outlined in the text of the manual.

Identify programs to be evaluated - Often criteria must be established as to how programs will be selected for evaluation. Criteria must be established in order to answer the many questions that will be posed concerning why a particular program was selected for evaluation as opposed to another program. Some of the criteria that can be used to select programs for evaluation are: a continuous decline in enrollment, few or no program graduates, the number of years a program has been in existence, the lack of program need based on labor market demands, and cost.

Once programs have been selected, a list of program graduates should be accessed and verified. The graduate questionnaire should be the first questionnaire mailed out, since the mail-out of employer questionnaires is dependent upon graduates' responses.

Once the decision is made to implement the evaluation model, it is necessary to begin articulation between evaluation staff, faculty and administrators. After programs have been selected for evaluation, program faculty and administrators should be presented an overview of the evaluation model. This articulation is necessary for informational purposes, to gain support for the evaluation effort, and ultimately to allay the fear of anxiety often associated with evaluation.

In addition to providing an overview of the evaluation model to program faculty and administrators, the evaluation staff can use this meeting to request competency statements from program chairpersons. The occupational community questionnaire requires more preparation time prior to the first mailing, for program competency statements must be developed and mailed-out along with the questionnaire. Often faculty do not have experience in the writing of competency statements. The evaluation staff should have this experience, or identify persons who have such skills to be able to assist in this effort.

The identification of the occupational communities can be done concurrently with the development of competency statements. This aspect of the evaluation process requires a great degree of time. The occupational community questionnaire cannot be mailed out until the communities have been identified and competency statements developed.

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APPENDIX A

29 Sub-Criteria 7 Criteria, Populations and Criterion Measures

CRITERIA	SUB-CRITERIA	POPULATION SAMPLED	CRITERION MEASURE
I. THE PROGRAM MEETS THE NEEDS OF THE LOCAL JOB MARKET	A. The program meets the employment needs expressed by the local occupational community.	Local Businesses and Industries	Occupational Community Questionnaire, Item #1
	B. Program students are employed in the area of training or a related field.	Program Graduates	Graduate Questionnaire, Item #10
	C. The program meets the training needs expressed by the local occupational community.	Local Businesses and Industries	Occupational Community Questionnaire, Item #2
	D. The program prepares students for presently available or statistically projected local job openings.	Labor Market	Manpower Division report
II. THE PROGRAM IS SUCCESSFUL IN MEETING THE VOCATIONAL ASPIRATIONS OF PAST AND PRESENT STUDENTS	A. Program graduates view their vocational training as adequate preparation for their employment.	Program Graduates	Graduate Questionnaire, Item #17
	B. Program graduates are satisfied with the knowledge offered by their program of study.	Program Graduates	Graduate Questionnaire, Item #18
	C. Program graduates are satisfied with the skills training offered by their program of study.	Program Graduates	Graduate Questionnaire, Item #19
	D. Program graduates rate the quality of their program of study as above average.	Program Graduates	Graduate Questionnaire, Item #16

CRITERIA	SUB-CRITERIA	POPULATION SAMPLED	CRITERION MEASURE
	E. Current students are satisfied with the skills training offered by their program of study.	Current Students	Current Student Questionnaire, Item #13
	F. Current students are satisfied with the knowledge offered by the program of study.	Current Program Students	Current Student Questionnaire, Item #12
	G. Current program students rate the quality of their program of study as above average.	Current Program Students	Current Student Questionnaire, Item #8
III. THE PROGRAM DEMONSTRATES SUCCESSFUL PERFORMANCE OF ITS GRADUATES	A. Employers are satisfied with the employee-graduate's overall job performance.	Employers of Program Graduates	Employers Questionnaire, Item #II-1
	B. Employers do not spend more than the average amount of time entry training their employee-graduates.	Employers of Program Graduates	Employers Questionnaire, Item #III-4
	C. Employers do not spend more than the average amount of money entry training their employee-graduates.	Employers of Program Graduates	Employers Questionnaire, Item #III-3
IV. THE PROGRAM RECEIVES THE SUPPORT OF THE OCCUPATIONAL COMMUNITY FOR WHICH TRAINING IS PROVIDED	A. Employers of graduates are willing to hire another graduate.	Employers of Program Graduates	Employers Questionnaire, Item #III-5
	B. The occupational community supports the program through their willingness to hire program graduates.	Local Businesses	Occupational Community Questionnaire, Item #5
	C. Employers of program graduates rate the program's job preparation as competent.	Employers of Program Graduates	Employer Questionnaire, Item #III-1

CRITERIA	SUB-CRITERIA	POPULATION SAMPLED	CRITERION MEASURE
	D. The program's knowledge and skills training is rated appropriate by the occupational community.	Local Businesses	Occupational Community Questionnaire, Item #6
	E. The occupational community is aware of the program.	Local Businesses and Industries	Occupational Community Questionnaire, Item #3
V. THE PROGRAM IS COST-EFFECTIVE	A. The program's cost per generated credit hour is balanced with its benefits in order to support the continuation of the program.		
	B. The program's cost per teacher contact hour is balanced with its provided benefits in order to support the continuation of the program.	Program Costs and Benefits	Cost-Benefit Evaluation Form
VI. THE PROGRAM IS SUCCESSFUL IN MEETING THE NEEDS OF HANDICAPPED AND DISADVANTAGED STUDENTS	A. Program facilities are equipped to handle the physically handicapped.	Program Facilities	Facilities Checklist
	B. The program has available personal support services to encourage the participation of the disadvantaged.	Program Chairpersons	Program Questionnaire
	C. The program has available personal support services to encourage the participation of the disadvantaged.	Program Chairpersons	Program Questionnaire
	D. The program has available academic assistance for the disadvantaged.		
	E. The program communicates its willingness to enroll the handicapped.	Program Chairpersons	Program Questionnaire

CRITERIA	SUB-CRITERIA	POPULATION SAMPLED	CRITERION MEASURE
	F. The program communicates its willingness to enroll the disadvantaged.	Program Chairpersons	Program Questionnaire
VII. THE PROGRAM IS SUCCESSFUL IN DEMONSTRATING SEX FAIRNESS	A. The program encourages students of both sexes to enroll in the program.	Program Chairpersons	Program Questionnaire
	B. Students do not drop from program because of sex bias.	Program Graduate	Graduate Student Questionnaire Item #9